MILL CREEK SPECIAL AREA MANAGEMENT PLAN (SAMP), KING COUNTY, WASHINGTON

DRAFT

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Definitions

Anadromous - species, such as salmon, that hatch in fresh water, spend a large part of their lives in the ocean, and return to fresh water to reproduce.

Aquatic Resources - All waters, water habitats and the organisms found in them including lakes and ponds; streams and rivers including adjoining riparian areas which they affects; marshes, swamps, and other wetlands

Barrier - An obstruction or other water condition which prevents the movement of organisms through the aquatic environment. The term is especially used to describe impediments to fish passage in streams.

Basin - A geographical area that drains to a major water body such as a river, lake, or creek, which is usually the water body for which the basin is named.

Best Management Practices (BMPs) - A method, activity, maintenance procedure, or other management practice for reducing the amount of pollution entering a water body.

Buffer - a designated area adjacent a stream or wetland that is an integral part of the stream or wetland ecosystem. The critical functions of a buffer (associated with an aquatic systems) include shading, input of organic debris and coarse sediments, uptake of nutrients, stabilization of banks, interception of fine sediments, stormflow attenuation during high water events, protection from disturbance by humans and domestic animals, maintenance of wildlife habitat, and room for variation of aquatic system boundaries over time due to hydrologic or climatic effects.

Buildout - A state in which land is developed more or less to the full extent permitted by zoning and other regulatory constraints.

Clean Water Act - A Federal law which establishes standards and procedures for limiting the discharge of fill and pollutants into waters of the United States.

Compensatory Mitigation - Is the restoration, creation, and preservation of wetlands and/or other aquatic resources for the purpose of compensating for adverse impacts on an aquatic resource that caused by a permitted project or activity.

Corridor - A continuous, linear area in which organisms, seeds, water, sediments, and nutrients can move uninterrupted and naturally from one end of the area to the other, or portions thereof.

Creation - The conversion of a persistent non-aquatic site into an aquatic site. For the purpose of this plan, creation includes the conversion of sites which currently do not

meet the definition of a wetlands, even though these sites were wetlands prior to being permanently drained and/or covered by fill.

Current Use Taxation (CUT) Program - A King County program in which property taxes are assessed based on the value of the current use of the property rather than its highest and best use. If the use is changed to a "higher" use, the property owner must pay the back taxes that would have been paid at the "higher" rate for up to the last 10 years if the property had not been assessed at the CUT rate.

Delineation - A determination of the boundaries of a wetland or other aquatic site.

Ditch - A long narrow excavation dug to carry water. Sometimes natural streams are excavated and turned into ditches. Especially in the case of larger streams, streams so treated may continue to be called streams rather than ditches.

Enhancement - Actions taken to add an aquatic function(s) which did not previously exist at an aquatic site.

Excavation - For regulatory purposes, this includes the removal of any material from an aquatic site in which there is at least an incidental redeposit of the material into the aquatic site.

Federal Wetland Reserve Program - A Natural Resources Conservation Service program that funds conversion of private agriculture, range, and forest lands back to wetlands.

Fill (Filling) - The material used for the primary purpose of replacing an aquatic area with dry land or of changing the bottom elevation of a waterbody.

Floodplain - The land adjacent to a stream or lake, built of alluvium and subject to repeated flooding.

Floodway - The channel of a river or stream and those portions of the adjoining floodplains that are likely to carry and discharge the 100–year flood; it is generally associated with rapidly flowing water.

Goal - A general statement of an end towards which effort is to be directed

Indicator Value Assessment Method (IVA) - A numeric, rapid assessment method for establishing the relative values of wetlands in regional planning. The method combines qualitative understanding of how local wetlands function with assessments of their regional values.

In-Kind Replacement - Providing or managing substitute resources to replace the functional values of resources lost, where such substitute resources are also physically and biologically the same or almost the same as those lost.

Inventory - Refers to a list of wetland sites whose boundaries have been roughly delineated.

King County Sensitive Area Ordinance - King County Ordinance 9614 and rules that identify environmentally sensitive areas (coal mine, erosion, flood, landslide, seismic, steep slope, and volcanic hazard areas, and streams, wetlands, and protective buffers) and supplement the development requirements contained in the various use classifications in the King County Code by providing for additional controls.

Large Woody Debris - Trees, in whole or part, that fall into the stream from the banks or float downstream until they lodge in the channel. Large woody debris provides variety in the local habitat, temporary sediment storage, and dissipates the energy of flowing water.

Mitigation - See Compensatory Mitigation.

Mitigation Sequencing - Provisions in the EPA Section 404(b)(1) Guidelines (40 CFR 230.10) which promulgate a mitigation policy requiring avoidance and minimization of adverse impacts on the aquatic environment before compensatory mitigation may be considered.

Nationwide Permit - A general permit that allows individuals and companies to discharge small amounts of fill into waters of the United States in situations where adverse impacts normally would be minimal. Nationwide permits have been issued for several categories of activities including wetland restoration projects, maintenance of existing facilities, road crossings, bank protection, and fills 3 acres or less in size in the headwaters of watersheds.

Objective - A specific statement of the level or condition to be obtained when a related goal is accomplished. Attainment of an objective is directly measurable while attainment of a goal is indirectly assessed through measurement of specific objectives related to the goal.

Open Water Body - In the SAMP, open water bodies consist of lakes and ponds. With most lakes in the area there is a surrounding wetland fringe and/or vegetated shallows which along with the open water compose the "wetland system."

Public Benefits Rating System (PBRS) - A scoring system based on a property's natural resource and open space qualifications which the tax assessor uses to estimate current use property value.

Practicable - Available and capable of being done after taking into consideration cost, existing technology, and logistics in light of overall project purposes.

Recommendation - An action which should be taken to attain an objective.

Regional Detention Facilities - See stormwater detention facilities.

Restoration - Actions taken which result in the re-establishment of aquatic site structure, processes, and functions in areas where the aquatic site has been altered, degraded, or destroyed.

Salmonid - A fish of the family Salmonidae. Some salmonids common to King County are chinook, coho, and sockeye salmon; cutthroat and rainbow trout; and Dolly Varden char.

Section 404 (b)(1) Guidelines - Regulations promulgated at 40 CFR 230 by EPA in accordance with Section 404(b)(1) of the Clean Water Act tell how EPA and the Corps will evaluate proposals for the discharge of fill into waters of the U.S. Department of Army permits may be issued only if they comply with the Guidelines. Generally, discharges of fill are allowed under the Guidelines only if no other environmentally less damaging practicable alternative is available, no significant degradation of the waters, no adverse impacts to threatened and endangered species, and if appropriate and practicable steps have been taken to minimize adverse impacts on the aquatic ecosystem.

Spawning Habitat - Aquatic habitats where fish can lay and fertilize their eggs. For salmon these are usually areas with stable pea-sized gravel substrate through and over which cool, well oxygenated water is flowing.

Stormwater - Surface water that is found in streams and depressions in direct response to a specific storm event.

Stormwater Detention Facility - Ponds, ditches, or other water holding areas which can store or help infiltrate enough runoff to reduce peak flows that cause flooding and or erosive damage in streams. Sometimes these facilities include oil-water separators, bio-filtration areas, or other means of cleaning dissolved and or suspended pollutants carried by stormwater runoff.

Stream - An area where surface waters produce a defined channel or bed. A defined channel or bed is an area that demonstrates clear evidence of the passage of water and includes, but is not limited to, bedrock channels, gravel beds, sand and silt beds, and defined–channel swales. The channel or bed need not contain water year–round. This definition is not meant to include irrigation ditches, canals, storm water runoff devices or other entirely artificial watercourses unless they are used by salmonids or used to convey streams naturally occurring prior to construction. Those topographic features that resemble streams but have no defined channels (i.e., swales) should be considered

streams when hydrologic and hydraulic analyses done pursuant to a development proposal predict formation of a defined channel after development.

Technical Oversight Committee - The TOC would be an interagency committee with responsibility, among other things, to review compensatory mitigation plans. It would not have independent decisionmaking authority of its own, but two of its members -- the Corps and the relevant local government —would have such authority . The TOC would also include regular advisory members: the EPA, NMFS, WDE, and the MIT. As needed, the TOC would draw on other organizations and public agencies for expertise and advice.

Watershed - See basin.

Wetland Rating System - A Washington State Department of Ecology method of rating wetland habitat suitability.

Wetland - Areas inundated or saturated by surface or ground water at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions. Wetlands generally include swamps, marshes, bogs, and similar areas.

Wetland Evaluation Technique (WET) - A technique for establishing correlations between field indicators of (1) the extent to which a wetland performs wetland functions (e.g. flood attenuation, water quality improvement, fish and wildlife habitat); (2) the extent to which there are opportunities for the wetlands to perform these functions; and (3) how much value society places on the performance of these functions.

Wetland System - For the purposes of this plan, system refers to two or more separately mapped wetlands or other aquatic resources which function together.

Acronyms

BMP - best management practices

BOD - biological oxygen demand

CFR - Code of Federal Regulations

COE - (U.S. Army) Corps of Engineers

CUT - (King County) current use taxation (program)

EIS - environmental impact statement

EPA - (U.S.) Environmental Protection Agency

FEMA - Federal Emergency Management Agency

FWS - (U.S.) Fish and Wildlife Service

GMA - Growth Management Act (Washington State)

HPA - Hydraulic Project Approval

IVA - indicator value assessment method (explained in appendix C)

KCC - King County code

MIT - Muckleshoot Indian Tribe

MOA - memorandum of understanding

NAIOP - National Association of Industrial and Office Parks

NPDES - National Pollution Discharge Elimination System

NRCS - U.S. Natural Resources Conservation Service (formerly U.S. Soil Conservation Service)

NWP - nationwide permit

O&M - operation and maintenance

PBRS - public benefits rating system

R.M. - river mile

SAMP - special area management plan

SAO - (King County) Sensitive Areas Ordinance

TOC - (Mill Creek SAMP) Technical Oversight Committee

WAC - Washington Administrative Code

WDFW - Washington State Department of Fish and Wildlife

WDOE - Washington State Department of Ecology

WET - wetland evaluation technique

WRIA - water resource inventory area

EXECUTIVE SUMMARY

WHAT IS THE MILL CREEK SPECIAL AREA MANAGEMENT PLAN (SAMP)?

The Mill Creek SAMP is the product of an intergovernmental planning effort to adopt and implement common policies for aquatic resource protection in the Mill Creek basin in the vicinity of Auburn, Washington. The U.S. Army Corps of Engineers (Corps) initiated the SAMP planning effort under the sponsorship of the cities of Auburn and Kent, and King County. Several other agencies including the Washington State Department of Ecology (WDE), the U.S. Environmental Protection Agency (EPA), and the Muckleshoot Indian Tribe Fisheries Department have been active stakeholders in the SAMP effort. The SAMP has also been substantially shaped by the comments and criticisms of civic organizations and citizens in various forums, and a citizen advisory committee.

The principal goal of the SAMP is to protect and restore aquatic resources in the Mill Creek basin to ensure no net loss of aquatic resource functions and values, while recognizing the need to accommodate projected growth in population and employment in the region. To this end, the SAMP identifies the location and conditions under which specific aquatic resource areas (i.e. wetlands, streams, ponds and lakes) may be developed, and other locations where aquatic resources would be protected, maintained, and restored to a more or less natural state. Aquatic resources would be protected and restored through:

- outright land acquisition and aquatic resource restoration by government and private entities;

- acquisition and management of selected wetlands in conjunction with flood- and stormwater retention facilities; and

- compensatory mitigation for development permitted on wetlands of generally lesser value to the aquatic resource system.

MILL CREEK BASIN DESCRIPTION

The Mill Creek Basin is a 22-square mile tributary located in the lower Green River Valley in King County, Washington **(Figure ES-1)**. The basin encompasses four significant streams: Mill Creek, Mullen Slough, Midway Creek, and Auburn Creek. The main stem of these streams share a sizable floodplain adjacent to the Green River. Mill Creek and Mullen Slough are the primary water courses.. About 75 percent of the basin is within the urban growth boundary of the city of Auburn. The remainder of the basin is within the corporate or urban growth boundaries of the cities Kent, Federal Way, and Algona. Only a small portion of the basin still lies within unincorporated King County.

The basin is divided into two physiographic features: the very flat valley floor (valley) and the western plateau and hillside. The valley contains about 17 miles of tributaries and 2,000 acres of wetland, some of them farmed. Major valley land uses are agriculture; highways and rail lines; housing; and an expanding commercial-industrial base of warehouses and business parks. The system of wetlands serves as habitat for waterfowl and other wildlife and stores water during periods of flooding. About 40 percent of the waterfowl wintering in the Green River valley utilize streams, wetlands, and lakes in the Mill Creek basin. Coho and Chinook salmon, cutthroat, steelhead and resident rainbow trout populations are much smaller than they were historically, but small populations still make extensive use of Mill Creek, Mullen Slough and their tributaries. Mill Creek is the only major tributary to the Green River between Soos Creek in Auburn and the mouth of the Duwamish River that provides unrestricted salmonid access.

The second physiographic feature, the western plateau and hillside transitioning to the valley, contains approximately 360 acres of forested wetlands and lakes. Interspersed with these wetlands and lakes are low and medium density residential developments and an associated road net. The plateau attains elevations 300 to 400 feet above the valley floor. The plateau has a glaciated relief in which stream courses are often poorly defined. Basins or depressions created by receding glaciers are occupied by four major lakes (Dolloff, Fenwick, Geneva, and Star), Bingaman Pond, and numerous wetlands. Mill Creek and Mullen Slough are the primary water courses draining the plateau. Tributaries of these streams have incised steep ravines through the hillside situated between the plateau and valley.

WHY WAS THE MILL CREEK BASIN SAMP STARTED?

In the 1960's, concerns and conflicts between advocates of environmental protection and economic expansion began to intensify as a result of substantial population and employment growth in the metropolitan area. Many citizens were alarmed by the increasingly negative effects of rapid development including urban sprawl, more frequent and severe flooding, loss of open space and wetland habitat, and declining water quality and salmon runs. Many were concerned about sustaining economic expansion, and the effects of bureaucratic delays and regulatory constraints on the development of private property. By 1990 Federal regulation of wetlands had expanded to such a degree compared to earlier years that issuance of permits for the filling of wetlands in the Mill Creek Basin became very controversial and politically charged. At this point the Corps, EPA, State, and local governments launched the Mill Creek SAMP to come up with a resource protection and development plan acceptable to a broad cross-section of interests. At about the same time, the environmental protection versus economic expansion issue came to a head at the State level, culminating in the Washington State Legislature's passage of the Growth Management Act (GMA) of 1990. The GMA requires that counties and cities work together to manage future development. Together, these circumstances propelled the Mill Creek SAMP forward as the vehicle for resolving the resource development versus protection controversy in this watershed.

WHAT IS THE RECOMMENDED PLAN OF ACTION?

The recommended plan consists of two major components: the SAMP report which shows which wetlands could be developed and which would be protected, and an Aquatic Resource Restoration Plan. Under the recommended plan in the SAMP report (see **Figure ES-2**), about 580 acres of currently unprotected wetlands would be protected from development and restored. Riparian and stream habitat along some hillside and most valley watercourses, and a substantial portion of about 280 acres of already protected wetlands would be restored. About 280 acres of generally lower value wetlands would be available for development. About 180 of these acres would comprise six parcels greater than 15 acres in size. This is especially important given the apparent regional shortage relative to demand for readily developable parcels greater than 15 acres in size.

The Aquatic Resource Restoration Plan in Appendix D identifies the aquatic sites with the greatest restoration potential and describes in concept how each of these sites should be restored to improve water quality, wildlife habitat, fish habitat, and low impact recreational opportunities. These include a two-stage (i.e. high and low flow) channel, riparian plantings, wetland habitat improvements (modifying ground contours or water regime, plantings) designed for habitat needs of target species, modified ditch maintenance procedures, and maintaining seasonal flooding of selected wetlands.

In addition to the two SAMP products, King County and the cities of Auburn and Kent are preparing a Flood Control Plan for the Mill Creek Basin (see Appendix E) in coordination with the SAMP. The flood control plan outlines measures for: minimizing the destructive effects of flood flows on stream habitat for fish and other organisms; restoring stream habitat and water quality; reducing flood damage potential; and improving drainage of agricultural and urban areas in the valley. Major features of the plan are shown in **Figure ES-3**. They include a limited amount of increased flood and stormwater storage, a two-stage channel, improved culvert design and maintenance, various in-stream structure changes benefiting fish and other aquatic organisms, and riparian corridor plantings.

The recommended SAMP was selected from among nine alternatives for the following reasons:

- It would make the largest number of acres of land available to accommodate projected growth, especially in employment, consistent with the objective of ensuring no net loss of aquatic resource functions;

- This alternative was among the top three alternatives resulting in a substantial net gain over existing levels of aquatic resource functions; and

- It relies primarily on compensatory mitigation as the most practical approach for funding acquisition and restoration of aquatic resources.

HOW WOULD THE SAMP BE IMPLEMENTED?

By signing a memorandum of understanding (MOU), the Mill Creek SAMP sponsors (King County, the Corps, and the cities of Auburn, Kent, Algona, and Federal Way) and stakeholders (U.S. Environmental Protection Agency, U.S. Fish and Wildlife Service, Muckleshoot Indian Tribe, Washington Department of Ecology, Washington Department of Fish and Wildlife) would commit themselves to implement the Mill Creek SAMP. This would mean:

- Protecting and restoring aquatic sites as mapped for the recommended alternative in Chapter 4 of the SAMP;

- Carrying out the SAMP goals, objectives, and key policy recommendations identified for sponsors and participants in Chapter 2 of the SAMP;

- Using the Mill Creek Aquatic Resources Restoration Plan as a guide for aquatic resource restoration; and

- Constructing and maintaining flood control measures which the sponsors agree to in the final Mill Creek Flood Control Plan, Phases 2 and 3.

Adoption of the SAMP would not mean that areas designated for development must be developed; only that development in the basin must be undertaken in a manner consistent with the SAMP. Once a local government sponsor signs the MOU, the sponsor would revise their comprehensive plans, ordinances, and administrative procedures as appropriate to implement the SAMP. The Corps would either continue issuing case-by-case standard individual permits, but on an expedited basis or prepare to issue a regional general permit for the entire Mill Creek SAMP area as allowed by Federal law. Applicants would submit applications to a local government permit coordinator who would provide copies of applications which are complete to the Corps, the Washington Department of Fish and Wildlife (WDFW) (if work proposed in streams) and to participant members of a Technical Oversight Committee (TOC). The TOC, composed of local government, Corps, and stakeholder representatives would help local governments and the Corps review applicants' detailed mitigation plans. The principal benefit of this permit process would be that the Corps would verify that an applicant's proposal was consistent with the SAMP within 60 days. Local governments would issue their SAMP consistency determination and grading, building and other permits within 90 days.

The SAMP could be updated periodically based on annual reviews prepared by the TOC of whether or not implementation of the SAMP, including compensatory mitigation

efforts, is progressing satisfactorily. The Corps would retain authority over the Department of the Army permit for the SAMP, and could be petitioned or act on its own initiative to suspend or modify the permit.

1. INTRODUCTION

1.1 WHAT IS THE MILL CREEK SPECIAL AREA MANAGEMENT PLAN (SAMP)?

The Mill Creek SAMP is the product of an intergovernmental planning effort to agree on and implement common policies for aquatic resource protection in the Mill Creek Basin. The U.S. Army Corps of Engineers (Corps) initiated the SAMP planning effort under the sponsorship of the cities of Auburn and Kent, King County, the Washington State Department of Ecology (WDE), and the U.S. Environmental Protection Agency (EPA). Several other agencies including the Muckleshoot Indian Tribe Fisheries Department are active participants in the SAMP effort.

The SAMP identifies the location and conditions under which specific aquatic resource areas (i.e. wetlands, streams, ponds and lakes) can be developed, and other locations where aquatic resources will be protected, maintained, and restored to a more or less natural state. The Plan's implementation focus is upon aquatic resource protection (and restoration) through outright wetland acquisition and preservation by government and private entities, through acquisition and management of selected wetlands for flood- and stormwater retention, and through compensatory mitigation for development permitted on wetlands of generally lesser value to the wetland system. The Plan is a result of scientific study and local community involvement. It is a plan which strives to integrate environmental protection with economic development activities within the framework of Federal, State, and local wetland programs.

1.2 MILL CREEK BASIN DESCRIPTION

The Mill Creek Basin is a 22-square mile tributary located in the lower Green River Valley in King County, Washington **(Figure 1-1)**. The basin encompasses four significant streams: Mill Creek, Mullen Slough, Midway Creek, and Northeast Auburn Creek. These drainages all share a sizable floodplain adjacent to the Green River. Mill Creek is the primary water course draining the uplands along with numerous smaller, unnamed streams to the north that converge in Mullen Slough. About 75 percent of the basin is within the urban growth boundary of the city of Auburn. The remainder of the basin is within the corporate or urban growth boundaries of the cities Kent, Federal Way, and Algona. Only a small portion of the basin still lies within unincorporated areas of King County.

The basin is divided into two physiographic features: the very flat valley floor (valley) and the western plateau and hillside. Within the valley are a large number of emergent wetland systems, some of them farmed, agricultural activities, major highways, and an expanding commercial-industrial base of warehouses and business parks. The valley floor contains approximately 2,000 acres of wetlands, 120 acres of restorable uplands, and approximately 17 miles of tributaries. A moderately extensive system of wetlands serves as habitat for waterfowl and other wildlife and stores water during periods of flooding. The second physiographic feature is the western plateau and hillside transitioning to the valley. The western plateau and hillside contains approximately 360 acres of forested wetlands and lakes. Interspersed with these wetlands and lakes are low and medium density residential developments and an associated road net. The plateau in the western half of the basin attains elevations 300 to 400 feet above the valley floor. There the hills have a glaciated relief in which stream courses are often poorly defined. Basins or depressions created by receding glaciers are occupied by four major lakes (Dolloff, Fenwick, Geneva, and Star), Bingaman Pond, and numerous wetlands. Mill Creek is the primary water course draining the uplands along with numerous smaller, unnamed streams to the north that converge in Mullen Slough.

Separating the plateau and the valley are steep slopes, which often rise abruptly from the valley floor to form the edge of the uplands. All the streams and tributaries of the plateau flow through short, steep, wooded ravines onto the valley floor to the east. The largest of these ravines is 1.5-mile long Peasley Canyon cut by Mill Creek.

1.3 WHY WAS THE MILL CREEK BASIN SAMP STARTED?

The Corps initiated the SAMP process in 1988 to address the controversy over how much wetland should be developed and protected in the Mill Creek Basin, and to streamline permitting processes. The SAMP process was also seen as an opportunity by the Corps, State, and local governments to improve the consistency between their respective aquatic resource management, flood damage reduction, and water quality improvement efforts. The stage for conflict was set by changes that occurred in the preceding two decades in local zoning ordinances, and Federal laws protecting the nation's aquatic resources. In the 1960's, before there was much Federal regulation of development in wetlands, local governments rezoned most of the wetlands in the lower valley for commercial and

industrial purposes. By the mid-1980's, as a result of the Clean Water Act and several court cases and settlements, the Corps and EPA were regulating development on most kinds of wetlands including isolated wetlands and wetlands above the headwaters. Other factors also came into play. The Seattle District Corps' increasing reliance on biological and hydrological field information for determining the Corps' jurisdiction over wetlands in the Mill Creek Basin led to a reclassification of wetlands once considered non-jurisdictional or "isolated" and consequently subjected them to more stringent regulation. The public's perception that declining water quality and salmonid habitat were causing the decline in salmonid populations added more fuel to the development versus resource protection debate.

As a result of these changes, relatively protectionist Federal wetland regulatory policies came into sharp conflict with local zoning policies which favored development over protection for most wetlands in the Mill Creek Basin. This basic conflict and associated controversy continues today. Private and public developers wishing to fill wetlands now sometimes face unexpected, and what they consider unacceptable, limitations on what they may do with their property. Furthermore, the process of obtaining Federal and local permits is sometimes lengthy and expensive, and often the outcome of the permit process is unpredictable. One reason is the Federal requirement for thorough consideration of potentially less environmentally damaging alternative sites. A second reason is the controversial nature of many development proposals. Controversy often leads to long permit approval times. Development proposals are inherently controversial because there is no public consensus over which and how much remaining environmentally sensitive land should be developed, protected, or set aside for flood- and stormwater retention. Some citizens and local governments are also actively concerned about adverse environmental impacts of further development on already degraded streams and wetlands, and the remaining undeveloped land in the Green River and Mill Creek valleys.

1.4 GOALS OF THE SAMP

In July 1990, the Corps, King County, and the cities of Auburn and Kent agreed to a final plan of study for the Mill Creek SAMP which identified seven goals. These goals reflected a balance the Federal, State, and local governments hoped to achieve between aquatic resource protection and urban (economic) development in the Mill Creek Basin. Based on public and agency input, the 1990 goals are expanded and refined to read as follows:

MISSION STATEMENT: The purpose of the Mill Creek SAMP is to protect and restore aquatic resources in the Mill Creek Basin to ensure no net loss of aquatic resource functions and values, while recognizing the need to accommodate projected growth in population and employment in the region.

GOALS:

1. Ensure that the performance of aquatic resource functions and the values they represent remain at current levels or increase to ensure greater long-term protection of fish and wildlife populations and their habitat, and meet Federal regulatory Section 404(b)(1) requirements.

2. Provide flood storage in the Mill Creek Basin adequate to protect public health, safety, and welfare while protecting the aquatic resources of the Basin.

3. Improve water quality in Mill Creek and its tributaries.

4. Accommodate development that is consistent with local comprehensive plans and county-wide population and employment growth allocations.

5. Provide greater predictability for both developmental and environmental interests.

6. Provide for long-term maintenance and management of aquatic resources in the Basin.

7. Seek and secure funding for conservation easements and/or for outright acquisition of critical wetland/stream corridor tracts.

8. Provide a variety of recreational and education opportunities within the Basin

A more detailed discussion of SAMP goals and associated objectives is presented in Chapters 2 and 3.

1.5 SAMP COMPONENTS

The SAMP consists of a primary document called the Mill Creek Basin SAMP and several oversize maps and appendices, the most important of which is the Mill Creek Basin Restoration Plan (Appendix D). The main SAMP report contains the goals, recommendations, evaluation of alternatives, an implementation strategy including a proposed permit process, and maps reflecting agreement about which wetlands should be protected and which developed. Some of the appendices are attached to the main report, and some are incorporated by reference because of their bulk. The main SAMP report is composed of seven chapters:

Chapter 2 contains a summary of eight aquatic resource related problems in the basin, and the goals and objectives that will guide efforts to address these problems.

Chapter 3 is a restatement of the goals and objectives plus detailed recommendations for achieving them.

Chapter 4 contains a discussion of alternative plans, including a preferred plan, and how well each of them would achieve the plan's goals and objectives.

Chapter 5 is a discussion of the process of mitigation planning and how the amount of compensatory mitigation would be determined for individual projects implemented in accordance with the SAMP.

Chapter 6 contains a description of a process for implementing the SAMP including permit application and review procedures for projects and activities proposed for aquatic sites.

Chapter 7 is a brief discussion on how the Mill Creek SAMP will be monitored for effectiveness and improved over time.

The Mill Creek Basin SAMP appendices are an extremely important part of the Mill Creek SAMP and include several independently useful technical documents. Some of them are complete, stand-alone reports, and because of their size are included by reference rather than bound with the main SAMP report:

Appendix A. An inventory of wetland resources, identified using the *1989 Federal Manual for Identification and Delineation of Jurisdictional Wetlands.* Previous wetland inventories conducted by King County and the City of Auburn, 1990 aerial photography, National Wetland Inventory maps, and soils maps were used as the background material for field investigations conducted in 1990 and 1991 (incorporated by reference, copies in Corps files). Readers will not need to study this appendix unless they are preparing a detailed wetland site delineation or wish to verify the documentation upon which this plan is based.

Appendix B. A report containing an assessment Agency conducted in 1991 and 1992 of wetland functions and values for the Mill Creek wetlands using the Wetland Evaluation Technique (WET) developed by Paul Adamus of the Environmental Protection, and a 1991 assessment of habitat function of wetlands using the Washington Wetland Rating System developed by the Department of Ecology. This appendix represents an attempt to explain a very technical endeavor in plain English. Permit applicants do not need to study this appendix.

Appendix C: *Estimating Relative Wetland Values for Regional Planning* by Tom Hruby, William E. Ceasanek, and Keith E. Miller (June 1995). This report explains the Indicator Value Assessment (IVA) technique used to rank Mill Creek Basin wetlands according to their relative performance of wetland functions from high to low. This appendix represents an attempt to explain a very technical endeavor in plain English

Appendix D. A restoration plan for Mill Creek wetlands, streams, and selected uplands. This report will be used to direct compensatory mitigation as well as aquatic resource restoration efforts in the watershed (incorporated by reference). A must-read report for anyone interested in Mill Creek basin aquatic site restoration and compensatory mitigation.

Appendix E. A stand-alone report incorporated by reference describing the Mill Creek Flood Control Plan. Phases 1 and 2 have been completed so far. Alternative E from this plan is included as part of each of the SAMP alternatives (incorporated by reference). This report need be reviewed only if the reader wants much more detail than summarized in the main SAMP report.

Appendix F. An historical overview of the lower Green River. Gives useful perspective.

Appendix G. *Mill Creek Water Quality Management Plan* (incorporated by reference). Essential reading for those interested in any aspect of water quality. The main SAMP report and Restoration Plan repeat only a few of this report's recommendations and background items in detail.

Appendix H. A memorandum of understanding signed by adopting agencies for implementing the SAMP.

Appendix I. *Guidelines for Developing Freshwater Wetlands Mitigation Plans and Proposals* published by the Washington Department of Ecology, publication #94-29, March 1994.

Appendix J. Aquatic Site Restoration Cost Estimates for real estate and construction.

1.6 HOW WILL THE MILL CREEK BASIN SAMP BE IMPLEMENTED?

By signing the memorandum of understanding, the Mill Creek SAMP sponsors and stakeholders would commit themselves to implement the Mill Creek SAMP. This means protecting and restoring aquatic sites as mapped, carrying out the plan's goals, objectives and key policy recommendations, and using the Mill Creek Aquatic Resources Restoration Plan as a guide. Adoption of the SAMP would not mean that areas designated for development must be developed; only that development undertaken in a manner consistent with the SAMP would be permissible at those locations. Local governments within the basin would revise their comprehensive plans, ordinances, and administrative procedures as appropriate to implement the SAMP. Based on annual reviews prepared by a Technical Oversight Committee (TOC) of whether implementation of the SAMP, including compensatory mitigation efforts is progressing satisfactorily, amendments could be presented to modify the SAMP whenever appropriate. The Corps would retain authority over the Department of the Army permit for the SAMP, and could be petitioned or act on its own initiative to suspend or modify the permit.

1.7 AUTHORITY

SAMPs are recognized as a viable planning tool by the Coastal Zone Management Act (CZMA; 1980 Amendments, 16 USC 1452, 1453). The 1980 amendments to the CZMA define the SAMP process as "a comprehensive plan providing for natural resource protection and reasonable coastal-dependent economic growth containing a detailed and comprehensive statement of policies, standards and criteria to guide public and private uses of lands and waters; and mechanisms for timely implementation in specific geographic areas within the coastal zone." The Corps' Regulatory Guidance Letter on SAMPs (RGL 92-03) states that the SAMP process involves collaborative interagency planning within a geographic area of special sensitivity. The guidance letter further states that the SAMP process is applicable in non-coastal areas.

The Auburn Comprehensive Plan (April 1995) authorizes the City's participation in the SAMP process and sets forth the City's current policies concerning land use, economic development, and natural resource protection and management. Specific provisions relevant to the SAMP include the following: Goal 3 Coordination (Policies GP-24 through GP-28 on page 2-8); Goal 18 Environment and Natural Resources (Policies EN-28 on wetlands and SAMP on page 9-7; EN-2 through EN-15 on page 9-2 addressing flood control and stormwater management, water quality, and aquatic habitat issues); Goal 11 Industrial Development (especially policies LU-105 through LU-116 on page 3-37).

The Kent Comprehensive Plan (April 1995) enables the city's participation in the SAMP process. The most important provisions include: Land Use Goal LU-19 (collaborate with others to create long-term sustainable relationship between economic development and natural resource protection); Goal LU-23 and associated policies (maintain and improve the quantity and quality of wetlands); and Economic Development Goal ED-1 and associated policies (establish a permit process system that is fair and timely).

King County Countywide Planning Policies (January 10, 1995): Economic Development ED-4 (balancing economic development and protection of environment as a key economic element), Contiguous and Orderly Development CO-4 (surface water management cooperative efforts), Framework FW-3 and FW-4 (comprehensive planning

for environmental protection), Critical Areas CA-1 through CA-11 (wetlands, wildlife habitat, flood hazard reduction).

1.8 PLANNING HORIZON

The planning horizon for the SAMP is 20 years. At the end of this planning period it is assumed that available land will have been fully developed in areas designated for development or protected as either compensatory mitigation land or wetland reserve. The Corps would be required to review and, if appropriate, re-issue a basin-wide Department of Army permit every 5 years. There will also be an annual review of the SAMP by the Technical Oversight Committee to assess whether permit actions are conforming to the SAMP, whether adjustments need to made, and whether SAMP goals are being met.

1.9 OVERVIEW OF AFFECTED ENVIRONMENT

Historically, the primary land use on the valley floor was agriculture. Within the City of Auburn this has rapidly been converting to industrial, commercial, and residential development since the 1960s. The increase in urban growth in the Green River valley is reflected in the rapid development of residential areas particularly on the hillsides flanking the Green River valley and Mill Creek.

Within the 22-square-mile Mill Creek Basin, only about 2,400 acres of wetlands and open water bodies remain. About 1,400 of these acres are in agricultural use with most of the balance of 1,000 acres either fallow farm, pasture or wood land. About 700 acres of the agricultural wetlands are in the King County Farmland Preservation Program and thereby protected from urban development. Another 780 acres of agricultural and non-agricultural wetland are in some kind of protected status - existing compensatory mitigation wetland, steep slope, floodway, or King County class 1 or 2 wetland.

At first glance many of the wetlands on the valley floor portion of the basin appear to be highly degraded and dominated by non-native pasture grasses. However, closer examination reveals a mosaic of wetland habitats including emergent forest and shrub habitats interspersed with open water habitat. Many of the wetlands on the valley floor area are very large systems of wetland habitats often inter-connected by the two primary streams in the basin, Mill Creek and Mullen Slough, or tributaries or drainage ditches that ultimately flow into Mill Creek, Mullen Slough, or the Green River. These water

courses provide important migration corridors and rearing habitat for numerous fish and wildlife species.

Coho and Chinook salmon, cutthroat, steelhead, and resident rainbow trout populations are much smaller than they were historically, but small populations still make extensive use of Mill Creek, Mullen Slough, and associated aquatic resources including tributaries and wetlands. Mill Creek and its lowland tributaries provide significant overwintering habitat for juvenile salmonids. Between the mouth of the Duwamish River and the confluence of the Green River and Soos Creek, the Mill Creek system is the only major tributary to the Green River that provides unrestricted salmonid access. The Mill Creek system is particularly important as a refuge during the winter months when heavy rains begin and Green River flows become high and turbid. As river flow increases, juveniles move from inhospitable habitats in mainstem Green River to the lowland areas of Mill Creek. These areas experience lower water velocities, provide optimal temperature conditions for growth and provide cover for the fish, resulting in reduced energy expenditures and increased food intake. Survival and growth rates of juvenile salmonids utilizing overwintering habitat in the Mill Creek Basin are greater than for those utilizing the overwintering habitat in other tributaries of the Green River or more exposed habitats in the mainstem of the Green River.

Thousands of migrating waterfowl and shorebirds stop in Mill Creek basin wetlands and lakes every winter. The U.S. Fish and Wildlife Service estimates that 40 percent of the wintering waterfowl in the Green River valley utilize the Mill Creek basin. An active great blue heron rookery with over forty nesting pairs exists in the southern portion of the basin. Bald eagle, peregrine falcon and other birds of prey can also be spotted perching in cottonwood trees overlooking wetlands and the stream corridor. All of these wildlife species and numerous others depend on the remaining wetlands, stream corridors, and open water bodies to provide resting areas, feeding sites, and breeding opportunities.

Flooding occurs almost annually, principally in parts of the Mill Creek Basin valley floor causing road damage, cropping and livestock problems, erosion hazards, and flood damage to small number of businesses, homes, and roads. Flooding, the temporary and periodic covering of the landscape by ponded water, is a natural event that has occurred for thousands of years. It is perceived as a problem first because it places limits on the potential economic uses of property for agriculture and urban development especially in

and near the 100-year floodplain; second because agricultural and urban development is causing more water to run off the landscape and collect in low areas than ever before. The nature of specific flooding problems, their locations, and authoritative citations are laid out in detail in the Mill Creek Flood Control Plan, Phase II report (the most current edition is a draft dated February 1997).

Flooding in the basin has two causes. First, water confined by levees to a narrow channel in the Green River backs up into the ungated mouths of Mill Creek and Mullen Slough from the Green River. In a 100-year flood event, over 1,000 acres of mostly agricultural land is flooded. The Green River backwater most commonly affects Mill Creek and Mullen Slough downstream of South 277th Street to their confluence with the Green River. Agricultural fields in this area and the West Valley Highway are inundated most every year for days or weeks at a time. This problem has also been aggravated by the filling of floodplain/flood retention areas. Two of the three main north-south transportation corridors - State Route 167 and Auburn Way - are generally located above the 100-year flood level.

The second main cause of flooding in the Mill Creek valley floor is runoff generated within the basin. The combination of local runoff generated by basin tributaries and a seasonal wetlands on the valley floor portion of the basin appear to be highly degraded and dominated by non-native pasture grasses. However, closer examination reveals a mosaic of wetland habitats including emergent forest and shrub habitats interspersed with open water habitat. Many of the wetlands on the valley floor are very large systems of wetland habitats connected to one or both of the two primary streams in the basin, Mill Creek and Mullen Slough. The combination of local runoff generated by basin tributaries and a seasonally high water table often causes water to overtop stream banks in the valley floor upstream of the Green River backwater, and aggravates flooding in the backwater areas. Poorly maintained ditches and culverts, and improperly sized culverts also are aggravating local flooding problems.

2. IDENTIFICATION OF BASIN NEEDS AND SAMP GOALS

2.1 RESOURCE PROTECTION & DEVELOPMENT NEEDS

In the 1960's, concerns and conflicts between advocates of environmental protection and economic expansion began to intensify as a result of substantial population and employment growth in the metropolitan area. Many citizens were alarmed by the increasingly negative effects of rapid development including urban sprawl, more frequent and severe flooding, loss of open space and wetland habitat, and declining water quality and salmon runs. Many were also concerned about sustaining economic expansion, and the effects of bureaucratic delays and regulatory constraints on the development of private property. By 1990, the issuance of permits for the filling of wetlands in the Mill Creek Basin had became so controversial and politically charged that the Corps, state, and local governments launched the Mill Creek SAMP to figure out a way to address the underlying needs and concerns. At about the same time, the environmental protection versus economic expansion issue came to a head at the state level, culminating in the Washington State Legislature's passage of the Growth Management Act (GMA) of 1990. The GMA requires that counties and cities work together to manage future development. Together, these circumstances propelled the Mill Creek SAMP forward as the vehicle for resolving the resource development versus protection controversy.

The resource protection and development needs that sparked the SAMP are summarized in **Table 2.1**. These were identified from several sources including:

- Discussions with applicants for Department of Army permits to fill wetlands during the 1980's,
- SAMP public meetings and workshops,
- Public statements and positions of citizen environmental protection organizations,
- Particularly knowledgeable representatives of professional and commercial associations and businesses, and
- Policy statements and concerns expressed by both executive and legislative representatives of King County, and the cities of Auburn and Kent in various public forums and in their respective, recently adopted comprehensive plans.

There is not unanimous agreement among legislators, citizens and various organizations that every one of the needs and problems shown in **Table 2.1** is genuine or important. But for each need there are substantial numbers of advocates.

2.2 DEVELOPMENT OF GOALS AND OBJECTIVES

The needs and expectations in the Mill Creek Basin were used by the interagency SAMP committee as the basis for generating eight goals, which, if achieved in some measure, would

address those needs. The linkages between the goals and needs are illustrated in Table 2-1 as a matrix showing which goals address which needs. The goals, and their associated objectives are summarized in Table 2-2. Each of the eight SAMP goals is discussed in the paragraphs below, including the problems and needs each addresses. Chapter 3 discusses recommendations for implementing the SAMP objectives.

Table 2-1. Resource Development and Protection Needs In the Mill Creek Basin

ENVIRONMENTAL RESTORATION/PROTECTION NEEDS	GOAL(S) ADDRESSING NEED							
	1	2	3	4	5	6	7	8
Protect Remaining Wetland Functions and Values	X	X	X			X		X
Improve the Aquatic Habitat of Streams and Ponds by Improving Water Quality.	X		X					
Ensure Various Resource Protection/Enhancement and Development Measures are Planned and Implemented to be Consistent with One Another to the Maximum Extent Practicable.					X	X		
Ensure There is a Workable Financial Strategy That Makes Practicable the Protection and Restoration of Basin Wetlands and Aquatic Resources By the Public, Property Owners, Developers, and Others.		X					X	
DEVELOPMENT NEEDS	**GOAL(S) ADDRESSING NEED**							
	1	2	3	4	5	6	7	8
Protect the Natural Environment as a Key Economic Value in the Region (King County County-Wide Planning Policies, Policy ED-4, January 10, 1995).	X		X			X		X
Maintain an Adequate, Appropriately Situated Supply of Land for Further Economic Development (King County County-Wide Planning Policies, Policy ED-9, January 10 1995).				X				
Provide Greater Predictability and Consistency as to Where and What Development is Acceptable in the Basin.					X			
Assure Developers and Owners that there is an Economically Viable Use for their Property.	X	X					X	
Reduce the time required between the initial application submittal and issuance of all development permits.					X			
Agree on the Location and Management of Floodwater/Stormwater Retention Areas by Owners; Developers; Local Governments; the Washington Departments of Ecology, and Fish and Wildlife; and the Corps.		X			X			

Table 2-2. Summary of Goals and Objectives

GOAL ONE: Resource Restoration/Protection (RR/P): Ensure aquatic resources remain at current levels or increase to protect fish and wildlife habitat.
RR/P1 - Establish system of aquatic resources as fish and wildlife habitat that will be maintainable in future.
RR/P2 - Develop balance between re-establishment of historic wetland and stream habitats, and enhancement of existing habitats.
RR/P3 - Improve and protect salmonid spawning habitat in the tributaries of Mill Creek, Mullen Slough, Midway Creek, and Northeast Auburn Creek.
RR/P4 - Improve salmonid rearing and overwintering habitat in the valley floor reaches of Mill Creek, Mullen Slough and valley floor tributaries.
RR/P5 - Assure consistency between wildlife habitat improvement actions and fish habitat improvement actions.
RR/P6 - Assure consistency between water quality improvements and flood hazard reduction proposals, and fish and wildlife habitat restoration.
GOAL TWO: Flood Hazard Reduction (FHR): Provide flood storage and conveyance adequate to protect public health, safety, and welfare while protecting aquatic resources.
FHR1 - Protect existing storage capacity of the 100-year floodplain
FHR2 - Protect, and where possible improve stormwater and flood storage, and conveyance capacity to prevent and/or minimize hazards to public health, safety, and welfare.
FHR3 - Support the creation of local flood hazard reduction plan that is consistent with SAMP goals and objectives.
GOAL THREE: Water Quality Improvement (WQI): Improve water quality
WQI1 - Improve water quality in the Mill Creek Basin to meet State water quality standards. This includes increasing dissolved oxygen and reducing water temperatures during the summer low flow season.
WQI2 - Assure consistency between water quality improvement objectives and all other objectives including flood hazard reduction and resource protection actions.
GOAL FOUR: Economic Development (ED): Accommodate development that enables local jurisdictions to meet county-wide planning policy growth targets.
ED1 - Meet basin-wide land-use needs based on comprehensive plan projections while meeting goals and objectives of the SAMP.
ED2 - Facilitate development that minimizes adverse impacts to aquatic resources.
GOAL FIVE: Implementation (I): Provide greater predictability for both development and environment interests.
I1 - Streamline the permit process.
I2 - Limit permit review to assessment of conformity with the SAMP and the Clean Water Act section 404 (b)(1) guidelines.
I3 - Reflect the needs and interests of the tribes and Federal, State, and local regulatory and resource agencies and achieve consistency among Federal, State and local aquatic resource management programs.
I4 - Reduce work load on resource agencies while maintaining a high level of resource protection.
I5 - Place the burden of protecting important natural resources on the public at large rather than individual aquatic resource property owners.
GOAL SIX: Aquatic Resource Management (ARM): Provide for long-term maintenance and management of aquatic resources in the basin.
ARM1 - Develop a comprehensive operation and maintenance program that coordinates enhancement of habitat and water quality functions while providing flood hazard reduction
ARM2 - Ensure that capital expenditures for projects funded by Federal, State, and local governments meet the goals and objectives of the SAMP.
GOAL SEVEN: Land Acquisition And Financing (LAF): Seek and secure funding for conservation easements and/or outright acquisition of critical wetland/stream corridor tracts.
LAF1 - Seek a stable funding program from a variety of private, Federal, State, and local sources.
LAF2 - Establish an oversight mechanism to administer acquisition and subsequent care for easements and acquired parcels.
GOAL EIGHT: Public Access And Recreational Use (PARU): Provide a variety of recreational and educational opportunities within the basin.
PARU1 - Educate basin residents and business owners what they can do individually and collectively to better maintain natural resources in the basin.
PARU2 - Encourage development of nature parks and environmental interpretive facilities where this would not compromise resource functions.

2.3 RESOURCE RESTORATION/PROTECTION (GOAL ONE)

2.3.1 Statement of the Problem and Background

The ecological functioning of thousands of acres of wetlands and streams have been impaired or altered as a result of agricultural and other human development activities in the Mill Creek basin. This impairment and alteration process continues today. If the loss of wetland and aquatic resource functions is not curtailed, many of the functions they perform and that are considered important by many people will be further degraded. These functions include maintaining water quality, providing habitat for feeding and breeding populations of a wide range of interdependent microscopic organism, vertebrates, and invertebrates; storing floodwaters; trapping chemical substances and sediments; and providing recreational/aesthetic opportunities.

Historic aquatic resource losses and alterations, and potential future aquatic resource losses if not better protected, are briefly outlined in the following paragraphs. A more detailed description of aquatic resources remaining in the basin may be found in the **Mill Creek Basin Aquatic Resources Restoration Plan (Appendix D).** Citations to information sources are also provided there.

The lower Green River valley, of which Mill Creek is one part, has experienced significant changes since the beginning of non-native settlement in the mid 1800's. The majority of the land in the valley bottom was cleared and converted to agriculture from its original forested cover. In the early 1900's, flows from the White River and Black River were diverted from the Green River watershed to reduce flooding, altering the hydrology of the valley. The building of Howard Hanson Dam in 1962 further reduced the threat of flooding and made possible conversion of the valley's agricultural lands into urban uses. Between 1960 and 1980, over 9,000 acres of agricultural lands were converted to other uses (see Shapiro 1990a). The Corps of Engineers (Scuderi et al 1994) estimates that between 1980 and 1992, an additional 2,500 acres of open space (wetlands and uplands including agricultural land) were converted to urban uses. Tributaries to the Green River were also altered through a combination of channelization, ditching, reconfiguration, alteration of tributary mouths, sedimentation, and loss of riparian cover.

Within the 22-square-mile Mill Creek Basin, only about 2,400 acres of wetlands and open water bodies remain. About 1,400 of these acres are in agricultural use with most of the balance of 1,000 acres either fallow farm, pasture or wood land. Only about 700 acres of the agricultural wetlands are in the King County Farmland Preservation Program and thereby protected from urban development. About 780 acres of agricultural and non-agricultural wetland are in some kind of protected status.

At first glance many of the wetlands on the valley floor portion of the basin appear to be highly degraded and dominated by non-native pasture grasses. However, closer examination reveals a mosaic of wetland habitats including emergent forest and shrub habitats interspersed with open water habitat. Many of the wetlands on the valley floor area are very large systems of wetland habitats often inter-connected by the two primary streams in the basin, Mill Creek and Mullen

Slough, or tributaries or drainage ditches that ultimately flow into Mill Creek, Mullen Slough, or the Green River. These water courses provide important migration corridors and rearing habitat for numerous fish and wildlife species.

Coho and Chinook salmon, cutthroat, steelhead, and resident rainbow trout populations are much smaller than they were historically, but small populations still make extensive use of Mill Creek, Mullen Slough, and associated aquatic resources including tributaries and wetlands. Mill Creek and its lowland tributaries provide significant overwintering habitat for juvenile salmonids. Between the mouth of the Duwamish River and the confluence of the Green River and Soos Creek, the Mill Creek system is the only major tributary to the Green River that provides unrestricted salmonid access. The Mill Creek system is particularly important as a refuge during the winter months when heavy rains begin and Green River flows become high and turbid. As river flow increases, juveniles move from inhospitable habitats in mainstem Green River to the lowland areas of Mill Creek. These areas experience lower water velocities, provide optimal temperature conditions for growth and provide cover for the fish, resulting in reduced energy expenditures and increased food intake. Survival and growth rates of juvenile salmonids utilizing overwintering habitat in the Mill Creek Basin are greater than for those utilizing the overwintering habitat in other tributaries of the Green or more exposed habitats in the mainstem of the Green River.

This over-wintering function is at risk from stormwater discharged into the Mill Creek Basin, even when the discharges are assumed not to adversely impair salmonids. Because numerous assumptions in stormwater models overestimate the efficacy of flow control, peak flows are only partially mitigated; the impacts of the duration and frequency of discharge peaks on salmonids are often not mitigated. While the design release rates used in current stormwater models address channel stability and flood hazard reduction, they typically fail to protect fish habitat or fully mitigate for habitat loss.

Some segments of Mill Creek and Mullen Slough experience high water temperature and low oxygen levels during the summer. In spite of these physiologically stressful conditions for fish, recent surveys indicate juvenile salmonid use of the lowland reaches of the Mill Creek Basin extensively into September. Fish kills have been reported, but are often linked to non-point pollution, such as deposition of animal waste into the stream during low flow periods. Fish populations would probably increase substantially if stress inducing conditions were reduced.

One of the major aquatic habitat problems is the reduction in connectivity between the streams and wetlands. Wetlands and riparian areas adjacent to water courses once were a major source of shade; a relatively cool, slowly released flow of ground and surface water; and a source of detrital food and nutrients that nurtured fish and insects in the streams. Hydrology and hydraulic studies of the Mill Creek system indicate that any further loss of floodwater storage capacity, especially in the valley floor wetlands, or increases in peak upland runoff volume will significantly increase flood peaks and our ability to restore instream aquatic habitat and organisms.

Like many urban streams in King County, fish spawning gravel beds have been degraded through channel modification, floodplain filling, removal of large woody debris, and sedimentation of valley floor areas from hillside erosion. An example of this is the recent expansion of Peasley Canyon Road which reduced salmon spawning habitat on Mill Creek from West Valley Highway to Peasley Canyon Way, and eliminated salmon spawning access from Peasley Canyon Way to Lake Dolloff.

Thousands of migrating waterfowl and shorebirds stop in Mill Creek basin wetlands and lakes every winter. The U.S. Fish and Wildlife Service estimates that 40 percent of the wintering waterfowl in the Green River valley utilize the Mill Creek basin. An active great blue heron rookery with over forty nesting pairs exists in the southern portion of the basin. Bald eagle, peregrine falcon and other birds of prey can also be spotted perching in cottonwood trees overlooking wetlands and the stream corridor. All of these wildlife species and numerous others depend on the remaining wetlands, stream corridors, and open water bodies to provide resting areas, feeding sites, and breeding opportunities.

2.3.2 Statement of the Need

A substantial portion of the people in the metropolitan area believe that it is important to protect remaining wetland habitats for fish and wildlife from further degradation. Many people are attracted to live in the Seattle Metropolitan area by the attractiveness of its natural environment. The importance of and general support for these values are indicated by the passage and public support for the State Growth Management Act and by various environmental protection provisions contained in King County, city of Kent, and city of Auburn comprehensive plans. In order to protect and restore these values in the Mill Creek basin, the remaining pieces of the wetland/stream ecosystem need to be protected and restored. Hydrology and hydraulic studies of the Mill Creek system indicate that further increases in impervious surfaces, and flood control and stormwater control measures must be designed to prevent higher peak winter discharges and lower summer flows from destroying stream and wetland habitat improvements along Mill Creek.

2.3.3 GOAL ONE: Resource Restoration/Protection (RR/P)

Ensure that the performance of aquatic resource functions and values they represent remains at current levels or increases to ensure greater long-term protection of fish (especially salmonids) and wildlife populations and their habitat, and meet Federal Section 404(b)(1) Clean Water Act requirements.

2.3.4 Objectives

RR/P1 - Establish an interconnected system of streams, wetlands, other aquatic resources, riparian areas and uplands that will effectively function as fish (especially salmonids) and wildlife habitat, and that will be functionally maintainable in the foreseeable future.

RR/P2 - Develop a balance between re-establishment of historic wetland and stream habitats, and enhancement of existing habitats.

RR/P3 - Improve salmonid spawning habitat in the tributaries of Mill Creek, Mullen Slough, Midway Creek, and Northeast Auburn Creek.

RR/P4 - Improve salmonid rearing and overwintering habitat in the valley floor reaches of Mill Creek, Mullen Slough and valley floor tributaries.

RR/P5 - Assure consistency between water quality improvements and flood hazard reduction proposals, and fish (especially salmonid) and wildlife habitat enhancement.

2.4 FLOOD HAZARD REDUCTION (GOAL TWO)

2.4.1 Statement of the Problem and Background

Flooding occurs almost annually, principally in parts of the Mill Creek Basin valley floor causing road damage, cropping and livestock problems, erosion hazards and flood damage to businesses, homes, and roads. Flooding, the temporary and periodic covering of the landscape by ponded water, is a natural event that has occurred for thousands of years. It is perceived as a problem first because it places limits on the potential use and economic value of property for agriculture and urban development especially in and near the 100-year floodplain; second, because agricultural and urban development are causing more water to run off the landscape and collect in low areas than ever before. The nature of specific flooding problems, their locations, and authoritative citations are laid out in detail in the Mill Creek Flood Control Plan, Phase II report (the most current edition is a draft dated February 1997).

Flooding in the basin has two causes. First, water confined by levees to a narrow channel in the Green River backs up into the ungated mouths of Mill Creek and Mullen Slough from the Green River. In a 100-year flood event, over 1,000 acres of mostly agricultural land is flooded. The Green River backwater most commonly affects Mill Creek and Mullen Slough downstream of South 277th Street to their confluence with the Green River. Agricultural fields in this area and the West Valley Highway are inundated most every year for days or weeks at a time. This problem has also been aggravated by the filling of floodplain/flood retention areas.

The second main cause of flooding in the Mill Creek valley floor is runoff generated within the basin. The combination of local runoff generated by basin tributaries and a seasonally high water table often causes water to overtop stream banks in the valley floor upstream of the Green River backwater, and aggravates flooding in the backwater areas. Poorly maintained ditches and culverts, and improperly sized culverts also are aggravating local flooding problems.

Most seriously, hydrologic and hydraulic modeling studies of the Mill Creek Basin show that existing flooding and runoff problems in Mill Creek will continue to worsen even with required stormwater runoff control measures in place as urban development expands in the basin. These problems include increased peak annual flows, more frequent high flows, a higher than natural

volume of winter flows and lower than natural dry season flows (King County 1987; Northwest Hydraulic Consultants 1993). The possibility of providing effective regional stormwater detention in upland areas of the basin has been examined and found to be unfeasible (e.g. Entranco Engineers Inc, 1990).

Interagency agreement is necessary because many of the potential flood and stormwater retention/detention areas would be sited in wetlands, and because stormwater problems are caused by urban developments which cross jurisdictional boundaries. No single jurisdiction has the authority and geographic reach to solve flooding and stormwater problems alone. While uplands in the lower basin could be used for retention/detention areas, the use of wetlands for this purpose may not be contrary to the public interest, and may even have beneficial effects if the water is properly pre-treated to remove pollutants and the impacts of removing accumulated sediment are minimized.

2.4.2 Statement of Need

Flood control is important to enable economic expansion and development in the Mill Creek valley floor and to make practicable the restoration of aquatic habitats, particularly along and in stream courses. Flood proofing or a decrease in peak water surface elevation equivalent to a reduction of about 2 feet relative to current levels is generally needed to allow proper protection/drainage for existing and proposed developments on the valley floor above the Green River backwater. In agricultural areas in the Green River backwater, any decrease in the elevation or frequency of high spring water tables would be beneficial to farmers. An increase in the acreage of Fall, Winter, and Spring flooding of riparian areas and fields is needed to maintain and improve waterfowl habitat especially given the recent loss of the old Auburn sewage treatment lagoons, and improve settling out of sediment and nutrient. The economic and physical practicability of engineering these decreases are discussed in Appendix E. Setting aside of certain wetlands as a place to store floodwaters also may help to meet the need for a financially practicable way of acquiring and restoring wetlands. It also provides a potentially viable, economic use for wetland property. Meeting the need for flood controls requires agreement on the location and management of floodwater/stormwater retention areas by owners, developers, local governments, the Washington State Departments of Ecology and Fish and Wildlife, Muckleshoot Tribe, and the Corps.

2.4.3 GOAL TWO: Flood Hazard Reduction (FHR)

Provide flood storage in the Mill Creek Basin adequate to protect public health, safety, and welfare while protecting the aquatic resources of the basin.

2.4.4 Objectives

FHR1 - Protect or improve the existing storage capacity of the 100-year floodplain in order to reduce peak flood flows and maintain minimum flows under existing and future build-out conditions.

FHR2 - Provide, and where possible improve stormwater and flood storage, and conveyance capacity to prevent and/or minimize hazards to public health, safety, and welfare.

FHR3 - Support the creation of a local flood hazard reduction plan that is consistent with SAMP goals and objectives.

2.5 WATER QUALITY IMPROVEMENT (GOAL THREE)

2.5.1 Statement of the Problem and Background and Need

A 1987 Basin Reconnaissance Study (King County, 1987) determined that Mill Creek is one of two streams in the Seattle-King County metropolitan region with exceptionally poor water quality. As a result of this study, the King County Surface Water Management (SWM) Division prepared the Mill Creek Water Quality Management Plan. This study, completed in 1992, found that Washington State Department of Ecology water quality standards are commonly not met for water quality parameters such as dissolved oxygen, temperature, and fecal coliform bacteria. Turbidity is a problem, due in large part to severe erosion in steep headwater ravines, gravel pit excavation, and poor agricultural and construction practices. Nutrient and ammonia levels were also high in some reaches of the stream due in part to animal waste from dairy operations. Lack of shade from streamside vegetation, pollutants from roads, lawns, and urban activities, and failing septic tanks and illegal sewer hook-ups also contribute to the problem. The Green River basin, of which Mill Creek is part, has been chosen by King County as the highest priority watershed in King County for water quality management.

Mill Creek has been included on a list of waterbodies in the state which do not meet water quality standards issued by the Washington Department of Ecology, prepared under mandate of Section 303(d) of the Federal Clean Water Act. Mill Creek was included on the 1994 303(d) list because of the stream's poor dissolved oxygen and temperature conditions. Although the State has not yet established a priority ranking for this stream or prescribed remedial actions, the State will probably make remedial actions mandatory by about 2003 based on its current schedule and projected availability of funding.

Fish populations and habitat have been adversely affected by the poor water quality and extensive alteration of Mill Creek and Mullen Slough. Although these streams still support populations of coho and chinook salmon, steelhead, and resident cutthroat trout despite high water temperatures and corresponding low oxygen levels, populations would be much higher if these stress-inducing conditions were minimized. Fish spawning gravel beds on tributaries to these streams have become clogged with sediment generated by erosion on the hillside and the surrounding valley floor area. Flooding of agricultural fields also washes livestock waste into Mullen Slough and Mill Creek, thereby degrading water quality and fish habitat.

2.5.2 GOAL THREE: Water Quality Improvement (WQI)

Improve water quality in Mill Creek and its tributaries.

2.5.3 Objectives

WQI1 - Improve water quality in the Mill Creek Basin to meet State water quality standards (WAC 173-201). This includes increasing dissolved oxygen and reducing water temperatures during summer low flows where needed.

WQI2 - Assure consistency between water quality improvement objectives and all other objectives including flood hazard reduction and resource protection actions.

Without flood control measures, many areas in the valley floor, including areas proposed for development in this plan, will have serious drainage problems during and after Fall and Winter storms. Smith Brothers Farm and other agricultural operators will find it takes even longer than it does now for fields and pastures to dry out enough to be used in the Spring. Increased peak flows, increased winter runoff volumes and decreased summer flows, and increased sediment loads and their effects on stream structure and fish habitat will probably make Mill Creek even less hospitable for aquatic organisms than it is now. Habitat restoration would become less practicable.

2.6 ECONOMIC DEVELOPMENT (GOAL FOUR)

2.6.1 Statement of the Problem and Background

There appears to be a shortage of commercial-industrial sites greater than about 10 acres in size within the existing urban growth boundary and close to designated urban growth centers in central and south King County. This is based on Puget Sound Regional Council population and employment projections, and King County (including incorporated cities') allocations of employment and population growth. To many real estate professionals and business owners/managers, there is or soon will be a shortage in nearly all sizes of centrally located, commercially and industrially zoned land.

The city of Auburn, whose municipal boundaries contain or will eventually contain almost all of the land within the Mill Creek SAMP, estimates it has about 150 acres of commercially zoned (mostly heavy commercial) and 300 acres of industrially zoned land available within the entire city for development and redevelopment without any wetland limitations. While zoning can be changed and additional areas within the city's growth boundary could be annexed, these are not likely to greatly increase the city's commercial-industrial land supply: existing residential development patterns; the limited amount of flat land which is desirable for some types of development; the very limited number of large, un-subdivided parcels of land; and likely efforts to avoid placing incompatible uses next to one another will greatly limit changes to existing zoning other than for office-type activities.

In Kent about 300 acres of developable and redevelopable land zoned for commercial or industrial use remain without wetlands. In Renton only about 200 such acres remain. Much smaller amounts remain in Tukwila, Federal Way and unincorporated south King County. Substantial additional acreage of vacant industrially zoned land lies in the White River valley between Auburn and Sumner along State Route 167 in Pierce County. However, much of this area consists of wetlands and lands underlain by hydric soils.

In aggregate terms, the supply of commercially/industrially zoned land is adequate to meet projected needs for economic development during the next 20 years in King County (King County, January 1994, May 1994, and January 1995). This includes at least a 25 percent "cushion" over the projected need for land to allow for uncertainty inherent in land supply and demand forecasts. The 25 percent cushion also serves to ensure that, at the end of the forecast period, supply will be sufficient to allow the development market to operate freely without undue upward pressure on land prices.

Supporting documentation on the projected commercial/industrial land supplies (capacity) and population and employment includes the following documents, incorporated herein by reference:

- draft (January 12, 1994) and final (May 18, 1994) editions of the *Supplemental Environmental Impact Statement for the (King) Countywide Planning Policies (CPP)* including supporting work by the Data Resources Technical Forum referenced in these documents;
- *(King) Countywide Planning Policies* (January 10, 1995);
- *Kent Comprehensive Plan*, land use chapter (April 1995); and
- *City of Auburn Comprehensive Plan*, land use chapter (April 1995).

For land parcels larger than 10 acres, demand may now exceed supply. Unfortunately, as indicated by the King County Land Capacity Task Force in its November 1995 report, supporting evidence at this time is sketchy and partly anecdotal (KCLCF 1995). Several Seattle and south King County real estate professionals specializing in the commercial-industrial market are of the opinion that larger sites are or soon will be very limited near primary transportation routes in Puget Sound's prime population, trading, and business concentration, roughly bounded by Seattle, Kent, and Redmond.

In Auburn, there are only about five potentially developable parcels larger than 10 acres without major wetland/sensitive area constraints. In the Green River valley portion of Tukwila, Renton, and Kent there are only about six potentially developable parcels of this size, some of which currently are not available for purchase and development by others (Patty 1995). There is not much industrially zoned land outside the valley in these cities,

The kinds of firms which require larger parcels for development vary considerably. Warehousing, distribution, and volume retailing activities appear most dependent on larger land parcels, single story buildings close to shipping, transportation and population nodes. According to several commercial-industrial real estate professionals, these types of activities can locate on the outside of the urban fringe. But projected highway congestion in more outlying areas makes more centrally situated sites in the Green River area particularly attractive to a substantial number of firms. The large size of the Seattle-Kent Redmond market, and access to out-of-state markets and suppliers via I-90 , I-5 , and the Seattle-Tacoma airport also make the Green River valley especially attractive to such firms.

2.6.2 Statement of Need

Land and building space is needed for homes, businesses, parks, and infrastructure that will support the population increases and accompanying growth in businesses that are expected in the Seattle metropolitan during the next few decades.

2.6.3 GOAL FOUR: Economic Development (ED)

Accommodate development that enables local jurisdictions to meet county-wide planning policy growth targets.

2.6.4 Objectives

ED1 - Meet basin-wide land-use needs based on comprehensive plan projections while meeting goals and objectives of the SAMP.

ED2 - Facilitate development that minimizes adverse impacts to aquatic resources in accordance with the goals and objectives of the SAMP.

2.7 IMPLEMENTATION (GOAL FIVE)

2.7.1 Statement of the Problem and Background

The current case-by-case development approval process means that wetland property owners/developers often do not know whether and to what extent they can develop a property until they have expended considerable money and effort to obtain local, State, and Federal approvals. There is also little certainty or public agreement on where and under what circumstances wetlands and other aquatic resources should be protected and restored. In some instances wetland and riparian property owners are paying more property taxes than appropriate given the developmental potential of their property.

The permit process has frustrated both proponents and opponents of individual permit actions. Individual permit actions often have become the foci of conflicts between developers/owners and environmentalists or other interests. Both interests have been frustrated by the time and effort expended fighting the same issues of protection vs. development on a case-by-case basis, because these issues have never been resolved on a basin-wide basis.

Developers and property owners in particular have been frustrated by the fact that they enter the costly permit process “gauntlet” without any assurance that they will come out with a reasonably viable project or will win approval for all the permits they need. There often is a high degree of uncertainty as to the final permit conditions and mitigation requirements until the permit process is over. A long lead time is required to secure all permits (between 1 and 6 years).

2.7.2 Statement of Need

Water quality improvements are needed in order to restore wetland habitats and especially stream habitat. Clean Water Act standards specify that stormwater runoff discharged into wetlands be at least as clean as that which currently enters the wetland under existing conditions. Water quality

improvement also contributes toward protection of the natural environment as a key economic value in the region for tourism and fish and shellfish production.

While there are differences of opinion, many owners, developers, and potential buyers prefer to know up-front which parcels may be developed, and with what limitations. Improved predictability would reduce their expenditures on projects which fail to be approved. Also, consistent development policies with predictable permitting outcomes are attributes which tend to enhance an area's attractiveness for business location.

Land value assessment procedures for land in the Mill Creek Basin also pose problems for some property owners. Currently, the King County tax assessor assesses property at rates corresponding to the full development potential of the land based on zoning and other considerations However, Federal, State and local laws which regulate development on lands that contain wetlands and stream corridors sometimes have the affect of limiting such property's development potential. As a result, the assessed value of such properties may exceed the property's actual development potential.

2.7.3 Statement of Need

There are four needs addressed by how the SAMP is implemented. First, there is a need for greater predictability and consistency as to where and what development is acceptable in the basin aquatic sites. Second, there is a need for a permit process that reduces the time required between submission of a complete application and issuance of a development permit. Third, the different parts of the SAMP, including the flood control and stormwater management components, need to be consistent with one another. Fourth, to work properly, the SAMP should help assure an economically viable use for affected properties so that owners of aquatic sites do unfairly bear the cost of environmental protection.

2.7.4 GOAL FIVE: Implementation (IM)

Provide greater predictability for both developmental and environmental interests.

2.7.5 Objectives

IM1 - Streamline the permit process for proposed projects with minimal environmental impacts that meet the goals and conditions of the SAMP.

IM2 - Limit permit review to assessment of conformity with the SAMP by providing an advance assessment of acceptable activities and their respective locations; mitigation and restoration needs; and performance of functions and values following the Clean Water Act section 404 (b)(1) guidelines.

IM3 - Reflect the needs and interests of the tribes and Federal, State, and local regulatory and resource agencies and achieve consistency among Federal, State, and local wetland and stream protection and management programs.

IM4 - Reduce workload on resource agencies while maintaining a high level of resource protection.

IM5 - In cases where public health, safety, and welfare are not threatened, the burden of protecting important natural resources should not be borne exclusively by aquatic site property owners and any single local government. Costs and responsibilities should be spread to the public at large.

2.8 AQUATIC RESOURCE MANAGEMENT (GOAL SIX)

2.8.1 Statement of the Problem and Background

Historically, many public utilities and facility maintenance agencies, as well as private property owners and farmers have maintained their facilities and perform activities without understanding or considering methods/procedures and (seasonal) timing that minimize adverse impacts to aquatic resources.

Aquatic resource management includes routine and non-routine types of maintenance activities on both public and private property. Some property consists of protected aquatic resource lands and streams including compensatory mitigation areas. Other property consists of wetlands and ditches in developed areas, farmlands, and uplands adjacent to streams and wetlands upon which activities occur that potentially could adversely affect the nearby aquatic resources.

Examples of routine maintenance of restored wetlands and other aquatic resources include: annually removing vegetation of certain types or in certain locations; checking, cleaning, and repairing water control structures that maintain water levels for habitat, vegetation, wildlife, waterfowl, and flood- and stormwater management; annual cropping and fertilization practices on agricultural wetlands and adjacent non-wetlands; litter control; and upkeep of signs, fences, walkways, and trails. Non-routine activities include replacing culverts, reconstructing boardwalks, landscaping and vegetation management, and removing accumulated sediment from drainage ways.

Traditionally, public works departments have performed many of these and similar activities on public property and rights-of-way using work teams whose principal training and general orientation are in engineering and equipment operation. Private property owners and tenants have performed these activities themselves or hired contractors to do it for them. Both of these groups have tended to perform maintenance activities without understanding or considering methods/procedures and (seasonal) timing that minimize adverse impacts to aquatic resources.

2.8.2 Statement of Need

Long-term maintenance and management activities designed to protect aquatic resources will help meet needs to protect and improve wetland functions and values. Implementation of appropriate maintenance procedures will also help ensure that operation and maintenance of various public and private facilities and preserves are consistent with other SAMP flood damage reduction, development, and water quality improvement measures.

2.8.3 GOAL SIX: Aquatic Resource Management (ARM)

Provide for long term maintenance and management of aquatic resources in the basin.

2.8.4 Objectives

ARM1 - Develop a comprehensive operation and maintenance program that coordinates enhancement of habitat and water quality functions of wetlands and other aquatic resources throughout the basin while providing flood hazard reduction benefits for basin residents.

The program should include:

a) Public works facilities and amenities that protect /enhance aquatic resources, and

b) Aquatic resources restoration and enhancement areas developed for compensatory mitigation or as independent restoration efforts.

ARM2 - Ensure that capital expenditures funded by Federal, State, and local government meet the goals and objectives of the SAMP.

2.9 LAND ACQUISITION AND FINANCING (GOAL SEVEN)

2.9.1 Statement of the Problem and Background

Presently, there is no process in place for systematically funding the protective acquisition and restoration of basin aquatic resources. It would be impracticable to have all funding mechanisms and other arrangements organized by the time SAMP participants sign a Memorandum of Understanding (MOU) implementing the SAMP. However, it is possible to develop and follow a strategy for financing and implementing land acquisition, resource protection, and development measures.

Financing is necessary to purchase important resources, to enhance and monitor projects designed to protect and enhance aquatic resources, to develop flood hazard reduction and stormwater facilities, to train staff members, and to develop and maintain recreational and educational amenities. Short-term funding is needed to finance the acquisition and enhancement of the Mill Creek Restoration Corridor, and other important resources in the basin. Long-term funding sources are needed to ensure proper maintenance and monitoring of habitat resources, and of the flood hazard reduction, water quality, recreational, and educational facilities.

2.9.2 Statement of Need

A land acquisition and financing strategy directly addresses the need for a workable financial strategy to make protection and restoration practicable for government agencies, owners/developers, and the general public. In addition, this goal will effectively help to increase the value and demand for wetlands, thereby also helping to address the need to assure developers and land owners that there is an economically viable use for their properties.

2.9.3 GOAL SEVEN: Land Acquisition And Financing (LAF)

Seek and secure funding for conservation easements and/or outright acquisition of critical wetland/stream corridor tracts.

2.9.4 Objectives

LAF1 - Seek a stable funding program from a variety of private, Federal, State, and local sources.

LAF2 - Establish an oversight mechanism to administer acquisition and subsequent care for easements and acquired parcels.

2.10 PUBLIC ACCESS AND RECREATIONAL USE WITHIN BASIN AQUATIC RESOURCES (GOAL EIGHT)

2.10.1 Statement of the Problem and Background

Scenic and recreational opportunities provided by undeveloped lands are an important part of the Seattle metropolitan area's uniqueness and attractiveness as a place to live and work. Undeveloped lands also contribute toward the attractiveness of the area to tourists and retention of employees in the region. With increasing urbanization of the Puget Sound region, the remaining undeveloped areas are becoming even more important for aesthetic, economic and recreational purposes. The greatest deficiency of park and recreational lands are in the urban areas of King County (King County 1994).

The Mill Creek Basin offers a variety of habitats, including lakes, streams, forested wetlands, and large marshes. Many of these lands and habitats are currently in private ownership and except for viewing from distant roads, are not available for public recreational and educational uses. Acquisition and protection of SAMP wetlands and streams with public, and to some extent private funds means that substantial new areas could be opened for public recreational and environmental education activities. Areas with high recreational/educational value would also include flood- and stormwater retention areas

A variety of amenities, such as boardwalks, foot trails, viewing platforms, and interpretive signs could be created for enjoyment and observation of nature consistent with fish and wildlife habitat restoration and protection requirements. These areas could easily become part of the larger trail, park, and greenbelt, complex that King County and local municipalities are developing in the Green River valley. Participation by various members of the community could be fostered. Local bird watching groups, garden clubs, fishing organizations, schools, community service clubs, and environmental groups could help design, install, and maintain interpretive and habitat improvement projects in these areas.

2.10.2 Statement of Need

Recreational use is a wetland function and value which is especially valuable in urban areas. Protection of recreational and aesthetic values also helps address the need to protect the natural environment as a key economic value in the region.

2.10.3 GOAL EIGHT: Public Access And Recreational Use (PARU)

Provide a variety of recreational and education opportunities within the basin.

2.10.4 Objectives

PARU1 - Educate basin residents and business owners on what they can do individually and collectively to better maintain natural resources in the basin.

PARU2 - Encourage development of nature parks and environmental interpretive facilities within and adjacent to aquatic resources where this would not compromise resource functions.

3. RECOMMENDATIONS

3.1 INTRODUCTION

The purpose of this chapter is to make specific recommendations to implement the goals and objectives of the SAMP. Recommendations are organized by the SAMP Goals identified in Chapter 2:

- **Resource Restoration/Protection**
- **Flood Hazard Reduction**
- **Water Quality Improvement**
- **Economic Development**
- **Implementation**
- **Aquatic Resource Management**
- **Land Acquisition and Financing**
- **Public Access and Recreational Use**

For the Mill Creek SAMP to function effectively, the key recommendations listed below must be adopted and implemented by all the SAMP sponsors. The sponsors include local jurisdictions: the city of Auburn, city of Kent, and King County; and implementing agencies: the U.S. Army Corps of Engineers (Corps), the U.S. Environmental Protection Agency (EPA), and Washington State Department of Ecology (WDE).

The remainder of SAMP recommendations, the "additional recommendations", do not necessarily have to be implemented in the form suggested to have an effective, functioning program. Adoption of each recommendation will be through interlocal agreements, amendments to existing comprehensive plans, and issuance of a Departmen of the Army Permit by the Corps of Engineers. To aid the reader, the goals and objectives outlined in Chapter 2 have been repeated, followed by the key and additional recommendations supporting each goal.

3.2 RESOURCE RESTORATION/PROTECTION

3.2.1 Goal

Ensure that the performance of aquatic resource functions and values they represent remains at current levels or increases to ensure greater long-term protection of fish (especially salmonids) and wildlife populations and their habitat, and meet Federal Section 404 (b)(1) (Clean Water Act) requirements.

3.2.2 Objectives

RR/P1 - Establish an interconnected system of streams, wetlands, other aquatic resources, riparian areas and uplands that will effectively function as fish (especially salmonids) and wildlife habitat, and that will be functionally maintainable in the foreseeable future.

RR/P2 - Develop a balance between re-establishment of historic wetland and stream habitats, and enhancement of existing habitats.

RR/P3 - Improve salmonid spawning habitat in tributaries of Mill Creek, Mullen Slough, Midway Creek, and Northeast Auburn Creek.

RR/P4 - Improve salmonid rearing and overwintering habitat in the valley floor reaches of Mill Creek, Mullen Slough and valley floor tributaries.

RR/P5 - Assure consistency between water quality improvements and flood hazard reduction proposals, and fish (especially salmonid) and wildlife habitat enhancement.

3.2.3 Key Recommendations

RR/P KEY RECOMMENDATION 1 - All local jurisdictions, affected tribes, and resource agencies (i.e. SAMP implementing agencies) sign a memorandum of understanding adopting the Mill Creek SAMP development, restoration, and mitigation proposals to ensure no net loss of wetland and stream functions and values.

RR/P KEY RECOMMENDATION 2 - The restoration plan should be the guide for directing aquatic resource acquisition, restoration and enhancement actions in the basin. All aquatic resource impacts under the SAMP should be compensated for within the framework of the restoration plan.

RR/P KEY RECOMMENDATION 3 - SAMP implementing agencies should recognize the importance of the central Mill Creek corridor to the continued viability of ecological, hydrologic, and water quality functions in the lower Mill Creek Basin.

RR/P KEY RECOMMENDATION 4 - Ensure that compensatory mitigation is actually improving the performance of wetlands functions equal to or greater than initially estimated in the SAMP.

3.2.4 Additional Recommendations

RR/P ADDITIONAL RECOMMENDATION 1 - SAMP implementing agencies restore/create ecologically viable forested wetland habitats which are similar to wetland types found prior to non-native settlement of the area. Where needed, re-establish riparian cover along all creeks and associated tributaries. Re-establish forested wetland systems in areas identified in the restoration plan.

RR/P ADDITIONAL RECOMMENDATION 2 - As technically and biologically appropriate, local jurisdictions, with the support of affected tribes, resource agencies, the Washington Department of Transportation, and other landowners along streams and ditches, should remove culvert and other blockages, re-establish spawning gravel/habitat, improve stream habitat structure, and modify channel configurations to improve and protect aquatic life spawning and passage in Mill Creek, Peasley Canyon, and all other basin tributaries. They should also ensure new culverts, bridges, and other structures provide for fish passage.

RR/P ADDITIONAL RECOMMENDATION 3 - Local jurisdictions in cooperation with landowners should ensure that riparian areas, including ditches, are buffered by multiple layers of diverse native vegetation including trees and shrubs to prevent recolonization by invasive species, stabilize streambanks, and benefit water quality.

RR/P ADDITIONAL RECOMMENDATION 4 - Local jurisdictions should ensure appropriate stream buffers are provided for each stream class in new developments based on recommendations of the King County Sensitive Area Ordinance (SAO).

RR/P ADDITIONAL RECOMMENDATION 5 - Local jurisdictions should maintain and enhance an ecologically viable area for raptors, waterfowl and migratory shorebird usage in the wetland areas to be protected under the SAMP. This includes improving great blue heron habitat based on WDFW guidelines.

RR/P ADDITIONAL RECOMMENDATION 6 - SAMP implementing agencies should develop a working relationship with public and private advocacy groups to acquire, design, and enhance waterfowl and shorebird areas.

RR/P ADDITIONAL RECOMMENDATION 7 - SAMP implementing agencies should ensure wetland and stream restoration within identified floodplains, including mitigation for development projects, are compatible with the anticipated frequency, duration, depth, and extent of flooding.

3.3 FLOOD HAZARD REDUCTION

3.3.1 Goal

Provide flood storage and conveyance in the Mill Creek Basin adequate to protect public health, safety, and welfare while protecting the aquatic resources of the Basin.

3.3.2 Objectives

FHR1 - Protect or improve the existing storage capacity of the 100-year floodplain in order to reduce peak flood flows and maintain minimum flows under existing and future conditions (buildout).

FHR2 - Provide stormwater and flood storage, and conveyance capacity to prevent and/or minimize hazards to public health, safety, and welfare.

FHR3 - Support the creation of local flood hazard reduction plan that is consistent with SAMP goals and objectives.

3.3.3 Key Recommendations

FHR KEY RECOMMENDATION 1 - Local jurisdictions should ensure flood hazard reduction projects and floodplain management programs that are adopted by King County Surface Water Management (SWM), and the cities of Auburn and Kent protect, maintain and/or enhance existing aquatic resources, including wetlands. Further degradation of the aquatic environment must be prevented.

FHR KEY RECOMMENDATION 2 - Local jurisdictions should ensure the Mill Creek Flood Control Plan is consistent with other goals and objectives of the SAMP.

3.3.4 Additional Recommendations

FHR ADDITIONAL RECOMMENDATION 1 - Local jurisdictions should adopt a policy of restricting floodplain development such that development would not cause any increase in the elevation of the 100-year flood (zero rise) based on King County Code 21A.24. This policy should be adopted within 1 year of adoption of the Mill Creek Flood Control Plan.

FHR ADDITIONAL RECOMMENDATION 2 - Local jurisdictions should ensure runoff from future buildout conditions, in combination with stormwater control and floodplain management measures, should not cause an increase in peak flow rates and duration over those from 1995 land use conditions for the same frequency flood event.

FHR ADDITIONAL RECOMMENDATION 3 - The Corps and local jurisdictions should ensure that flood hazard reduction measures at the outlets of Mill Creek and Mullen Slough do not adversely impact fish (especially salmonid) use of those streams.

FHR ADDITIONAL RECOMMENDATION 4 - Local jurisdictions should arrange for local funding sources to acquire regional stormwater detention areas to accommodate anticipated runoff from future development.

3.4 WATER QUALITY IMPROVEMENT

3.4.1 Goal

Improve water quality in Mill Creek and its tributaries.

3.4.2 Objectives

WQI1 - Improve water quality in the Mill Creek Basin to meet state Water Quality Standards (WAC 173-201). This includes increasing dissolved oxygen and lowering water temperature during summer low flows in certain reaches of Mill Creek.

WQI2 - Assure consistency between water quality improvement objectives and all other objectives (including flood hazard reduction actions, resource protection actions).

3.4.3 Key Recommendation

WQI KEY RECOMMENDATION 1 - Local jurisdictions should require implementation of best management practices for water quality improvement consistent with the following: the 1993 King County SWM Mill Creek Water Quality Management Plan, the Mill Creek Restoration Plan, and the current edition of the Puget Sound Stormwater Management Manual..

3.4.4 Additional Recommendations

WQI ADDITIONAL RECOMMENDATION 1 - Local jurisdictions should improve riparian vegetation by planting or requiring the planting of a variety of native riparian plant species along Mill Creek and tributaries to stabilize streambanks, increase shading, and moderate summer stream temperatures. The reaches of Mill Creek from West Main Street downstream to the Highway 167 crossing, and river mile 0.5 to R.M. 2.3 should have the highest priority.

WQI ADDITIONAL RECOMMENDATION 2 - Local jurisdictions should mprove the flow of water in the Mill Creek channel so as to reduce biological oxygen demand and improve water quality values while preserving, restoring, and enhancing fish and wildlife habitat (especially salmonid).

WQI ADDITIONAL RECOMMENDATION 3 - Local jurisdictions should re-connect Mill Creek and Mullen Slough, where hydraulically separated by roads or berms, for example, to their floodplains to enhance water quality improvement functions in these creeks and associated wetlands.

WQI ADDITIONAL RECOMMENDATION 4 - Local jurisdictions should implement and ensure the implementation of erosion control measures in ravines, including especially Peasley Canyon, to minimize sedimentation and turbidity problems.

WQI ADDITIONAL RECOMMENDATION 5 - State and local jurisdictions should control point and non-point sources of pollution as recommended in the 1993 King County SWM Mill Creek Water Quality Management Plan.

WQI ADDITIONAL RECOMMENDATION 6 - Local jurisdictions and the Washington Department of Transportation should continue to treat storm roadway runoff. They should also retrofit roadways in the Basin currently lacking collection and treatment systems following the current Puget Sound Basin Stormwater Management Manual.

WQI ADDITIONAL RECOMMENDATION 7 - The SAMP basin steward and the King County Livestock Oversight Committee should encourage development of farm management plans that incorporate BMPs for livestock farms, including implementation of KCC21A.24 (SAO) and .30 (Livestock Density Ordinance) . New and existing farm management plans should be implemented and maintained by farmers and local conservation district.

WQI ADDITIONAL RECOMMENDATION 8 - Local jurisdictions (basin steward) should develop a long-term water quality monitoring plan for Mill Creek and selected tributaries to measure whether the goals of the SAMP, including restoration of the Mill Creek Basin and associated mitigation, are achieved.

3.5 ECONOMIC DEVELOPMENT

3.5.1 Goal

Accommodate development that enables local jurisdictions to meet county-wide planning policy growth targets.

3.5.2 Objectives

ED1 - Meet basin-wide land-use needs based on comprehensive plan projections while meeting goals and objectives of the SAMP.

ED2 - Facilitate development that minimizes adverse impacts to aquatic resources in accordance with the goals and objectives of the SAMP.

3.5.3 Key Recommendation

ED KEY RECOMMENDATION 1 - Local jurisdictions should ensure development occurs only in those areas designated as suitable in the preferred alternative.

3.5.4 Additional Recommendations

ED ADDITIONAL RECOMMENDATION 1 - Local jurisdictions should encourage the most efficient use of existing uplands and underdeveloped properties through redevelopment, rezoning, and intensification of existing use.

ED ADDITIONAL RECOMMENDATION 2 - Local jurisdictions should inform groups, such as the Auburn and Kent Chambers of Commerce, the Seattle/King County Economic Development Council, Master Builders, and NAIOP, of the importance of increased floor-to-area ratios, and opportunities for redevelopment of existing commercial, industrial, and residential properties within the basin.

3.6 IMPLEMENTATION

3.6.1 Goal

Provide greater predictability for both developmental and environmental interests.

3.6.2 Objectives

IM1 - Streamline the permit process for proposed projects with minimal environmental impacts that meet the goals and conditions of the SAMP.

IM2 - Limit permit review to assessment of conformity with the SAMP by providing an advance assessment of acceptable activities and their respective locations; mitigation and restoration needs; and performance of functions and values following the Clean Water Act section 404 (b)(1) guidelines.

IM3 - Reflect the needs and interests of the tribes and Federal, State, and local regulatory and resource agencies and achieve consistency among Federal, State, and local wetland and stream protection and management programs.

IM4 - Reduce workload on resource agencies while maintaining a high level of resource protection.

IM5 - In cases where public health, safety, and welfare are not threatened, the burden of protecting important natural resources should not be borne exclusively by aquatic site owners and any single local government, but must be spread to the public at large.

3.6.3 Key Recommendations

IM KEY RECOMMENDATION 1 - The Corps should issue a Department of Army permit for the SAMP area that streamlines Federal and local permit review processes through advanced interagency coordination, advanced identification of permitted types of and locations for development, and advanced assessment of environmental impacts. The permit should identify approval and oversight responsibilities retained by the Corps and a Technical Oversight Committee (refer to Chapter 6, The Permit Process Under the SAMP). Authority to approve various permits authorized under local jurisdiction ordinances should continue to rest with the appropriate local jurisdiction.

IM KEY RECOMMENDATION 2 - Compensation for the loss of aquatic resource functions and values should be provided based upon the guidelines described in SAMP Chapter 5, Minimizing and Mitigating Adverse Impacts.

IM KEY RECOMMENDATION 3 - Local jurisdictions should adopt the SAMP Wetland Inventory. The local wetland inventories and the SAMP wetland inventory should be compared and reconciled by the Corps to create the most current and accurate inventory. As new information becomes available (e.g. accepted delineations based on the 1987 Wetland Delineation Manual), the inventory should be updated by the Corps.

IM KEY RECOMMENDATION 4 - Local jurisdictions should adopt the SAMP as a component of their comprehensive plans.

IM KEY RECOMMENDATION 5 - The Corps should suspend use of Nationwide Permits 13, 14, 26 and 29 in the Mill Creek Basin[1] when the Department of Army permit is issued.

[1] Nationwide permits are granted by the Corps of Engineers for actions which have been determined to have minimal adverse environmental impacts and cumulative effects. Nationwide permit 13 covers bank protection. Nationwide permit 14 covers road

IM KEY RECOMMENDATION 6 - The SAMP implementing agencies should establish a Technical Oversight Committee (TOC) led by the Corps to assess the status of the SAMP on an annual basis or when an increment of 30 or more acres of wetlands have been developed under the SAMP. Applications for Corps individual standard permits in the Mill Creek Basin should also trigger a TOC review.

IM KEY RECOMMENDATION 7 - In addition to the annual review, the TOC should review and comment on proposed projects/activities in terms of environmental impacts and compliance with the SAMP.

3.6.4 Additional Recommendations

IM ADDITIONAL RECOMMENDATION 1 - The SAMP implementing agencies should allow the use of mitigation banks and the assessment of development fees to facilitate the SAMP permit process. Such programs may be implemented by the unit of government having jurisdiction, or private entrepreneurs, or combination thereof.

IM ADDITIONAL RECOMMENDATION 2 - EPA should investigate the possibility of using 404c designations for areas within the Mill Creek Basin to ensure protection of environmentally sensitive aquatic sites identified for protection in the SAMP.

IM ADDITIONAL RECOMMENDATION 3 - The SAMP implementing agencies should provide the King County Assessor's Office with information regarding wetlands and other aquatic resources, and associated development restrictions within the Basin. They should also enroll eligible properties in the King County Current Use Taxation (CUT) Program.

IM ADDITIONAL RECOMMENDATION 4 - The King County Tax Assessor should adopt SAMP maps for the purpose of calculating tax liability under the public benefits rating system (PBRS) in lieu of and until a standard wetland delineation is completed. Uplands should be taxed in the normal manner. Streams, wetlands, and buffers should be taxed at a reduced rate.

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crossings. In Washington State, Nationwide Permit 26 covers fill activities of less than 2 acres in isolated wetlands and wetlands in headwaters areas. Nationwide Permit 29 covers fills of up to one-half acre for building or expanding a single-family home and attendant features such as septic field, driveway, and garage.

IM ADDITIONAL RECOMMENDATION 5 - Local jurisdictions (basin steward) should provide property owners with information regarding tax advantages associated with land donations, sale of development rights and conservation easements.

3.7 AQUATIC RESOURCE MANAGEMENT

3.7.1 Goal

Provide for long-term maintenance and management of aquatic resources in the basin.

3.7.2 Objectives

ARM1 - Develop a comprehensive operation and maintenance program that coordinates enhancement of habitat and water quality functions of wetlands and other aquatic resources throughout the basin while providing flood hazard reduction benefits for basin residents.

The program should include:

a) Public works facilities and amenities that protect or enhance aquatic resources, and

b) Aquatic resources restoration and enhancement areas developed for compensatory mitigation or as independent restoration efforts.

ARM2 - Ensure that capital expenditures for projects funded by Federal, State, and local governments meet the goals and objectives of the SAMP.

3.7.3 Key Recommendations

ARM KEY RECOMMENDATION 1 - Local jurisdictions, applicants,and project proponent should develop a basic operations and maintenance (O&M) program for each enhanced wetland and stream, stormwater and flood hazard reduction facility, and recreational facility for which they are responsible. In development of the program and schedules, they should consider the multiple objectives of flood hazard reduction, stormwater conveyance, water quality improvement, provision of recreation/education opportunities, and fish (especially salmonid) and wildlife enhancement. They should recognize that some facilities cannot be maintained to implement all objectives of the SAMP.

ARM KEY RECOMMENDATION 2 - The TOC should develop guidelines, including best management practices, for the preparation of operation and maintenance programs

ARM KEY RECOMMENDATION 3 - Local jurisdictions should jointly fund a basin steward to help guide for aquatic resources management and restoration activities in the basin. These services should be available to public agencies, property owners, residents and tenants, and businesses. The basin steward should provide guidance as needed for construction activities, and monitor the status and condition of various aquatic resource improvements.

3.7.4 Additional Recommendations

ARM ADDITIONAL RECOMMENDATION 1 - The Corps in cooperation with local jurisdictions should maintain a data system for tracking permit, land use, and restoration and compensatory mitigation information. This information should be used to assess changes to land use and aquatic habitats in the SAMP area and provide detailed information to tribes, agencies and interested parties for resource protection and management, and assessment of cumulative impacts.

ARM ADDITIONAL RECOMMENDATION 2 - Local jurisdictions should coordinate environmentally sensitive ditch maintenance procedures with the drainage districts, landowners, and tenants. Where warranted, target education programs on proper ditch maintenance procedures.

ARM ADDITIONAL RECOMMENDATION 3 - The local governments' Public Works and Parks Departments should work together during the design, construction, and maintenance phases of the regional stormwater facilities to ensure these facilities provide appropriate multiple uses (flood hazard reduction, water quality improvement, aquatic resource enhancement, and recreation) whenever possible. The designers should use technical advice from the SAMP TOC and basin steward in designing their projects.

ARM ADDITIONAL RECOMMENDATION 4 - Local jurisdictions (basin steward) should develop a program to educate public works officials, including representatives from drainage districts, as to ways to lessen impacts to aquatic resources in the basin.

ARM ADDITIONAL RECOMMENDATION 5 - SAMP implementing agencies should allow any project proponent to maintain, repair and replace existing servicable structures in existing and former wetlands and streams as permitted by Nationwide Permit 3. An Hydraulic Project Approval (HPA) will still be required for any such action occuring in streams or ditches.

3.8 LAND ACQUISITION AND FINANCING

3.8.1 Goal

Seek and secure funding for conservation easements and/or outright acquisition of critical wetland/stream corridor tracts.

3.8.2 Objectives

LAF1 - Seek a stable funding program from a variety of private, Federal, State, and local sources.

LAF2 - Establish an oversight mechanism to administer acquisition and subsequent care for easements and acquired parcels.

3.8.3 Key Recommendations - None

3.8.4 Additional Recommendations

LAF ADDITIONAL RECOMMENDATION 1 - SAMP implementing agencies should recognize that the best way to ensure long-term protection and maintenance of natural resources within the Mill Creek corridor (as defined in paragraph 4.2.8) is to acquire the resources.

LAF ADDITIONAL RECOMMENDATION 2 - The first priority for land acquisition should be the wetland and riparian areas adjacent to Mill Creek.

LAF ADDITIONAL RECOMMENDATION 3 - Local jurisdictions should try to finance open space buyouts of Mill Creek corridor wetlands and streams by passing special tax levies or levy increases, issuing recreation and park bonds, or using other financial instruments.

LAF ADDITIONAL RECOMMENDATION 4 - Local jurisdictions should use storm water utility funds to the purchase of wetlands to retain treated stormwater runoff, when such actions would be consistent with the Clean Water Act. Wetland habitat so acquired could be enhanced while providing flood storage.

LAF ADDITIONAL RECOMMENDATION 5 - Local jurisdictions should use the Federal Wetland Reserve program to purchase permanent habitat easements and provide farmers with economic incentives to improve habitat.

LAF ADDITIONAL RECOMMENDATION 6 - State and local jurisdictions should purchase wildlife easements from willing sellers in order to maintain or improve habitat conditions.

LAF ADDITIONAL RECOMMENDATION 7 - Local jurisdictions should use the U.S. Department of Agriculture crop relief program and the Food Security Act to provide incentives not to convert wetlands to agricultural uses.

LAF ADDITIONAL RECOMMENDATION 8 - The Corps in cooperation with local jurisdictions should identify opportunities to obtain Federal Section 1135 funds for ecosystem restoration within the Mill Creek Basin.

LAF ADDITIONAL RECOMMENDATION 9 - SAMP implementing agencies should collaborate to obtain grants from public and private organizations offering them for aquatic resource acquisition and habitat improvement.

LAF ADDITIONAL RECOMMENDATION 10 - Local jurisdictions should establish a Memorandum of Understanding with a local land trust (e.g. Seattle-King County Land Trust) to aid in brokering acquisitions and subsequent management of acquired parcels.

LAF ADDITIONAL RECOMMENDATION 11 - Local jurisdictions should consider financing the voluntary purchase of Farmland Preservation Program properties and the associated development rights to use as wetland restoration areas in locations where wet soils make farming an economically marginal operation. King County would use the proceeds from the sale to purchase drier farmland in the Green River valley or other basins.

3.9 PUBLIC ACCESS AND RECREATIONAL USE WITHIN BASIN AQUATIC RESOURCES

3.9.1 Goals

Provide a variety of recreational and educational opportunities within the Basin. Facilities should complement the natural resources, while protecting the natural environment.

3.9.2 Objectives

PARU 1 - Educate basin residents and business owners on what they can do individually and collectively to better maintain natural resources in the basin.

PARU 2 - Encourage development of nature parks and environmental interpretive facilities within and adjacent to aquatic resources where this would not compromise resource functions.

3.9.3 Key Recommendations - None

3.9.4 Additional Recommendations

PARU ADDITIONAL RECOMMENDATION 1 - Local jurisdictions (basin steward) should establish a community outreach program involving educational meetings, publications, workshops, special events, and instruction to inform and involve County residents and others in education and recreation activity/facility development projects.

PARU ADDITIONAL RECOMMENDATION 2 - Local jurisdictions (basin steward) should provide residents and business owners with information, field visits, and technical assistance on how to develop projects consistent with SAMP objectives.

PARU ADDITIONAL RECOMMENDATION 3 - Educate the public on water quality concerns and use of BMPs to improve water quality . provide educational meetings, publications, workshops and instruction.

PARU ADDITIONAL RECOMMENDATION 4 - Local jurisdictions should use the SAMP TOC's annual monitoring report as a tool for continuing education of the general public and public officials.

PARU ADDITIONAL RECOMMENDATION 5 - Local jurisdictions in cooperation with landowners should provide a connected system of public access to and across aquatic resource lands in a manner that protects private property, minimizes adverse effects on aquatic resource functions, and supports compatible recreational and educational activities/facilities.

PARU ADDITIONAL RECOMMENDATION 6 - Local jurisdictions should prohibit active recreational facilities such as ball fields, and biking and offroad vehicle areas within wetlands. Such activities should be directed to existing paved facilities such as the Interurban Bicycle Trail and upland sites.

PARU ADDITIONAL RECOMMENDATION 7 - Local jurisdictions should coordinate their respective open space designations with each other as required by the Growth Management Act. These communities should also design open space and parks programs that would be compatible with the goals of the SAMP.

PARU ADDITIONAL RECOMMENDATION 8 - SAMP implementing agencies should establish a nature center in or near the Mill Creek Basin with interpretive displays to illustrate the benefits of wetlands and streams, describe natural processes, and explain the SAMP process.

4. EVALUATION OF SAMP ALTERNATIVES

4.1 INTRODUCTION

This chapter presents nine alternative scenarios that were evaluated to arrive at a preferred alternative which best meets the SAMP goals and objectives, and complies with existing laws and regulations.

The interagency SAMP Committee used typical urban development forms and varying levels of aquatic resource protection as patterns for formulating eight of the alternatives representing a wide range of options — from minimal wetland/aquatic resource protection accompanied by substantial urban development at one extreme, to maximum wetland/aquatic resource protection accompanied by minimal further urban development at the other extreme. The SAMP Citizens Advisory Committee developed a ninth alternative (numbered alternative 5). Each alternative essentially represents a different way for protecting aquatic resources and accommodating the need for additional developable land in the Mill Creek basin. The need is generated by projected metropolitan growth in population and employment.

The eighth alternative, Protect Mill Creek Corridor is the SAMP committee's preferred alternative. The alternative represents a basic corridor protection concept which has been further refined by incorporating ideas generated or stimulated by the SAMP Citizens Advisory Committee, the flood control planning effort, and information and opinions received from citizens and organizations in letters and at public workshops and meetings.

The next section describes the alternatives and how each was derived. Subsequent sections summarize the evaluation criteria and how each alternative measured up to the criteria.

4.2 DESCRIPTION OF ALTERNATIVES

Each alternative described below is a different mixture of wetland protection and development for the Mill Creek Basin. Alternatives were formulated based on the characteristics of the existing wetland systems, system hydrology, and proximity to roads, sewers and other utilities. A common element of all the alternatives is protection of about **1,477 acres** of wetlands upon which development is already substantially limited by existing laws and regulations other than Section 404 of the Clean Water Act. Some types of activities such as retention of storm- and flood water and habitat improvement may be possible on protected wetlands. The protective regulations and restrictions are:

- King County Farmland Preservation Program

- Class 1 and 2 wetlands protected by King County's Sensitive Areas Ordinance (SAO)[2]
- Regulatory floodway as defined by the Federal Emergency Management Administration (FEMA) Flood Insurance Study (1989)
- Existing compensatory wetland mitigation areas preserved under special conditions of Department of Army and local government permits

After eliminating all currently protected wetlands from consideration, there remain approximately **867 acres** of potentially restorable or developable wetlands in the Mill Creek Basin valley floor area. Nothing currently restricts property owners from developing these **867 acres** except local government wetland regulations and the Federal Clean Water Act (Section 404) requirement for a Department of the Army (Corps) permit. Most of the potentially restorable wetlands are currently zoned industrial, and based on current practices, could be rezoned for commercial purposes. The location and extent of these existing, potentially restorable wetlands as well as **1,477 acres** of already protected wetlands are shown in **Figure 4-1**. Of the 1,477 acres of already protected wetlands, about 284 acres could also be restored. Restoration of the other 1,193 acres is limited either because the wetland acreage is actively farmed under protection of the Farmland Preservation Program, or because it already functions at a high level and could not be further restored. The total of currently protected and potentially restorable wetlands in the basin amounts to **2,344 acres.** The wetland acreage figures discussed in this paragraph are summarized in **Table 4-1**.

TABLE 4-1. SUMMARY OF WETLAND ACREAGES BY PROTECTION STATUS, MILL CREEK BASIN

Category	Acres
Already Protected Wetlands	1,477
Restorable	284[3]
Not Currently Restorable/Already Restored	1,193
Unprotected Wetlands (could be protected or developed)	867
Total Basin Wetlands	2,344

Only two scenarios for stream protection and development are incorporated in the SAMP alternatives. A "No Action" scenario was applied to alternatives 1, 6, and 7. For the other alternatives, stream segments would be protected and restored to the extent that adjoining wetlands were also protected and restored. All the scenarios presumed a minimum 140-foot wide, no-development corridor containing Mill Creek from its mouth to Peasely Canyon. No

[2] King County Code, Chapter 21A.24.
[3] Already protected, restorable wetlands include the following wetlands: 2XX, 2C, 2D, 2E, KCMC8. The locations of these wetlands are shown in several of the Chapter 4 map figures.

specific scenarios or alternatives were developed for plateau and hillside streams where most of the stream segments not associated with adjoining wetlands are located. However, specific restoration measures are described and recommended for these stream segments in the Mill Creek Restoration Plan (**Appendix D**).

Another common element of all the SAMP alternatives except alternatives 6 (No Action) and 7 (No Development) is a set of flood control and riparian habitat improvement measures, called alternative E in the Flood Control Plan (Appendix E). The SAMP Committee helped synthesize alternative E from four flood control alternatives developed for the Flood Control Plan. This is the SAMP Committee's preferred flood control alternative because it adequately addresses basin flood damage reduction needs and is supportive of other SAMP goals and objectives, particularly for aquatic resource protection and restoration. Flood control aspects of this alternative can be characterized as reducing mainstem Mill Creek water levels where there is a need for such reductions by increasing channel capacity, flood storage capacity, and selective flood proofing. The alternative is based on the assumption that aquatic sites in the wetland corridor would not be developed. Flood control objectives and alternative E flood control measures are described below by stream segment and illustrated in **Figure 4.1**.

Mill Creek: Algona to State Route (SR) 18.

Flood Control Objective: Improve flood conveyance such that Mill Creek water levels upstream of SR-18 would be less than or equal to current levels.

Elements:

- Maintain clear flow path through the Auburn 400 ponds by removal and control of vegetation
- Install sediment trap on Peasley Canyon tributary to prevent accumulation of coarse sediment in SR-18 culvert. Ensure that fish passage and spawning not adversely impacted.
- Provide minimal disturbance conveyance and habitat improvements. Between the Auburn 400 ponds downstream to SR-18. These improvements are described and illustrated in greater detail in the Flood Control Plan (Appendix E) and the Restoration Plan (Appendix D).

Mill Creek: SR-18 to 15th St. NW

Flood Control Objective: Store flood water to the extent possible to reduce peak flows below 15th St. NW .

Elements:

- Provide minimal disturbance conveyance and habitat improvements. Between the Auburn 400 ponds downstream to SR-18. These improvements are described and illustrated in greater detail in the Flood Control Plan (Appendix E) and the Restoration Plan (Appendix D).

- Raise the Interurban Trail on the former railroad grade south of 15th St. NW to about elevation 58 feet to store up to an additional 1 foot of water in the 5L/5EEE wetland system on the east side of SR-167.
- Purchase five houses that would be affected by chronic flooding.

Mill Creek: 15th St. NW to 37th St. NW

Flood Control Objective: Control water levels such that the 100-year flood level is below about elevation 47 feet upstream of 37th St. NW (prevents flooding of Puget Power substation) and below elevation 48 feet upstream of 24th St. NW (keeps water from backing up into tributary storm drains and nearby development).

Elements:

- Provide minimal disturbance conveyance and habitat improvements between 15th St. NW and 24th St. NW.
- Provide two-stage channel conveyance and habitat improvements between 24th St. NW and 37th St. NW. The two-stage channel would consist of a smaller summer low flow channel up to about 10 feet wide within a larger flood conveyance channel about 70 feet wide. The flood conveyance channel would be excavated about 2 feet below the existing ground surface elevation and would be part of a minimum 200-foot wide riparian area. Measures would be taken to ensure that the excavation would not inadvertently drain existing wetlands outside the flood conveyance channel. As outlined in more detail in Appendices D and E, vegetation and stream structure elements would be designed to be self-maintaining as much as possible and especially to improve stream habitat for fish and other aquatic organisms. Sediment trap areas would be designated so that the conveyance capacity of the overall system can be maintained without constantly digging up the stream and wetlands to remove "excess" sediment.
- Improve conveyance at the 37th St. NW culvert crossings.

Mill Creek: 37th St. NW to 277th St. NW.

Flood Control Objective: Control water levels such that the 100-year flood is below elevation 43.9 feet downstream of 37th St. NW (keeps water from backing up into tributary storm drains and nearby development).

Element:

- Provide two-stage channel conveyance and habitat improvements.

Mill Creek: S 277th St. (Kent) to mouth.

Flood Control Objective: Reduce durations of chronic flooding through conveyance improvements and reduce flood damage during major events through a program of flood proofing.

Elements:

- Provide two-stage channel conveyance and habitat improvements.
- Raise West Valley Highway above the 100-year flood level.
- Flood proof Smith Brothers Dairy and several homes.

Mullen Slough: S 287th St. to S 277th St.

Flood Control Objective: Control flooding caused by a combination of increased run-off from upstream development and poorly maintained downstream drainage; eliminate flood hazard associated with the man-made Bingaman Creek channel along 55th Ave. S.

Elements:

- Intercept the three hillside drainages and combine into one main channel on the valley floor if overall positive benefit to fish and aquatic environment.
- Further consider rerouting Bingamon Creek so it flows due east from the base of its canyon to Mullen Slough.
- Reconstruct a single mainstem Mullen Slough channel and riparian corridor from S 287th St. to S 277th St. to improve conveyance and fish habitat.

Mullen Slough: S 277th St. to mouth.

Flood Control Objective: Improve conveyance to reduce duration and level of chronic flooding.

Element:

- Provide minimal disturbance conveyance and fisheries habitat improvements.

Northeast Auburn Drain

Flood Control Objective: Improve fish passage conditions and reduce flood damage by flood proofing.

Elements:

- Flood proof Smith Brothers dairy north of 277th St. and west of S Central.
- Replace existing flap gate with slide gate.

The following paragraphs describe each of the alternatives and alternative development criteria in more detail. Alternatives 1 (All Fill) and 7 (No Development) may be unrealistic scenarios, but they are included in the screening analysis to represent extremes of maximum and minimum economic and environmental impacts to which the other seven alternatives can be compared. A summary of the acres impacted by each alternative is included in **Tables 4-3 and 4-4.**

4.2.1 Alternative 1: All Fill

Under this alternative (shown in **Figure 4-2**), all unprotected wetlands (**867 acres**) in the Mill Creek Basin would be developed. For the purpose of defining this "worst case" scenario, it was assumed that no compensatory mitigation would be provided anywhere. In reality, it might be possible to place most of the compensatory mitigation required by Corps regulations (see Chapter 5) and local governments outside the basin. Only a limited amount of restoration would be possible on the 284 acres of already protected wetlands. Other potential opportunities for wetland restoration would be eliminated by filling the wetlands and smaller streams.

4.2.2 Alternative 2: No Net Loss of Wetland Acres

The purpose of this alternative is to show what would happen if all but **94 acres** of unprotected wetlands with the lowest functional values would be protected, but not restored. This alternative focuses upon using such limited financial resources as are available to acquire or protect as much of the wetland real estate base as possible. The location of the **773 acres** of wetlands that would be protected plus the **120 acres** of compensatory mitigation wetlands are shown in **Figure 4-3.** Impacts to the **94 acres** of wetlands would be mitigated by restoring **120 acres** of uplands in the Mill Creek corridor, most of which were once wetlands, back to wetlands.[4] This represents a 1:1.25 replacement ratio to make up for temporal losses and the risk of failure inherent in restoration efforts (explained more in Chapter 5)(Gwin and Kentula 1990). The corridor is described in detail in alternative 8. It was assumed that business, civic, and environmental groups would not coalesce to lead a publicity, fund raising, and levy initiative campaign to protect most of the remaining basin aquatic sites.

4.2.3 Alternative 3: Protect Existing High Value Wetlands

Under this alternative (shown in **Figure 4-4**), **360 acres** of unprotected wetlands in the valley would be available for development. The other **507 acres** of unprotected wetlands would be protected and restored. About **284 acres** of already protected wetlands would also be restored. Those wetlands to be protected meet the following criteria:

a. The wetland is at least partly within the 100-year floodplain as defined by FEMA;

b. The wetland Indicator Value Assessment (IVA) points for the wetland are in the top one-third of function group ratings for the fish habitat, wildlife habitat, and water quality (see paragraph 4.3.2 and Appendix C for an explanation of the IVA methodology);

c. The wetland value points are in the top tenth percentile of those evaluated for this plan for any one of the function groups: fish habitat, wildlife habitat, or water quality.

[4] The 120 acres were selected based primarily on their proximity to Mill Creek and other restorable wetlands, and their high restoration potential. Generally, wetlands adjoining streams have high restoration potential because water is readily available and because of the opportunity to improve water quality and habitat that benefits fish and other aquatic organisms.

4.2.4 Alternative 4: Road Encroachment

Under this alternative (shown in **Figure 4-5**), a total of **327 acres** of unprotected wetlands in the valley would be available for development. This alternative was generated by selecting unprotected wetlands within 300 feet on either side of existing major roads, and not in protected areas[5], [6]. The goal of this alternative is to assess the impacts of developing (filling) wetlands which are closest to infrastructure and have the best transportation access. Because of their proximity to existing services, these wetlands would be easiest and most economical to develop and thereby allow for a maximum return on existing public investments in road and other infrastructure.

4.2.5 Alternative 5: Citizen Advisory Committee's (CAC)

Under this alternative (shown in **Figure 4-6**), approximately **214 acres** of unprotected wetlands would be available for development. This alternative was developed by the Citizens Advisory Committee (CAC), a group of interested citizens, including property owners, from the environmental and business communities. The group developed this alternative by examining wetland functions and values, floodplains and floodways, potential or actual sites, access of sites, and the presence of infrastructure. Wetlands not adjacent to Mill Creek or Mullen Slough were generally considered more appropriate for development, while wetlands adjacent to Mill Creek and Mullen Slough were not because of potential flood hazard. In certain cases, properties were split to allow for some retention of wetlands while allowing partial development (typically a 300-foot-wide section of the parcel adjacent to a roadway).

4.2.6 Alternative 6: Status Quo

This alternative represents the development pattern that might occur in the absence of a SAMP. A maximum of **450 acres** of unprotected wetlands would be developed outside the 100-year floodplain. About **400 acres** of unprotected wetlands would become protected as mostly as compensation for developing the 450 acres of wetlands. No judgment was made as to which specific wetlands would be developed or protected. Also, about 300 acres of already protected wetlands would be restored as compensatory mitigation and by public environmental restoration efforts. It was assumed that filling in the 100-year floodplain would be kept to a minimum. Development would include acreage set aside for stormwater retention. Assumptions upon which this alternative is based are as follows:

[5] Major roads are defined as full access existing roadways. Limited access roadways such as Highway 167 are not considered in this alternative. Some seemingly minor roads are included in this alternative because they have potential for upgrade, and could service significant development.

[6] The 300-foot dimension was derived through discussions with real estate developers on the Citizen Advisory Committee (CAC). The 300-foot figure would allow for development of a standard warehouse or office park with sufficient room for a structure, parking, turnaround areas, and landscape buffers. The COSTCO warehouse at Highway 167 and 15th St. NW is an example of a development with these dimensions.

a. Development in wetlands would be authorized by an individual permit and meet the EPA 404(b)(1) Guidelines. These guidelines require an applicant to show that there would not be an environmentally less damaging alternative to the type of proposed development, that aquatic impacts would be minimized to the maximum extent practicable, and to provide compensatory mitigation for any adverse impacts that could not be avoided or minimized. Compensatory mitigation would be required at an acreage ratio of 2.9: 1, the same as the average determined for alternative 8 of the Mill Creek SAMP.

b. The need for larger developable or redevelopable tracts (e.g. greater than at least 10 acres) in the south King County area near existing and planned major transportation routes will exceed the supply. Presently, such tracts number at most in the dozens. Based on Puget Sound Council of Governments employment and population forecasts, most of these would be developed within the next 10 years except in wetlands, steep slopes, other sensitive areas, and residential or planned residential areas.

c. Some compensatory mitigation for development in the Mill Creek Basin would be approved for placement outside the Mill Creek Basin. Conversely, a smaller amount of compensatory mitigation would occur for development in wetlands outside the basin (e.g. Port of Seattle airport expansion).

d. Placement of fill for development would not be allowed by local ordinance in a corridor along Mill Creek that is at least 140 feet wide.

e. The Mill Creek Basin flood control plan (alternative E) would be implemented.

4.2.7 Alternative 7: No Development

Under this alternative shown **Figure 4-7**, there would be no further commercial-industrial or residential development in the **867 acres** of unprotected SAMP wetlands. In this alternative wetlands and other aquatic sites would not be restored. Natural increases in functions and values that might occur if wetlands and other aquatic sites were left alone were not considered in evaluating this alternative

4.2.8 Alternative 8: Protect Mill Creek Corridor

The purpose of this alternative (shown in **Figure 4-8)** is to protect and restore the corridor of wetlands closest to the principal streams in the Mill Creek basin. The objective of this alternative is to capitalize on the fact that protecting wetland-stream corridors has the greatest potential to expand the impact of wetland restoration beyond the immediate boundaries of wetlands to streams where water quality and habitat for fish and other aquatic organisms are important functions. The Mill Creek corridor includes the areas described below. No corridor is specified for Mullen Slough since most of the valley portion of the slough is in the Green River

and tributaries floodway. Under this alternative, **284 acres** of unprotected, off-corridor wetlands in the valley would be available for development. Approximately **583 acres** of unprotected wetlands would be protected and restored.

a. the regulatory floodway from the mouth of Mill Creek south to the first crossing of Mill Creek under State Route (SR) 167;

b. the area from the first culvert under SR-167 (near 44th St. NW) south to the 2nd crossing of SR-167 (near 22nd St. NW) bounded on the west by SR-167 and on the east by the Union Pacific Railroad tracks;

c. the area from the crossing of SR-167 (near 22nd St. NW) south to where Mill Creek crosses under the West Valley Highway, bounded on the west by the West Valley Highway and on the east by SR-167 and including areas within the 100-year floodplain on the east side of SR-167;

d. Peasely Canyon from the West Valley Highway to Peasely Canyon Way S bounded on
the north by SR-18 and on the south by the canyon rim.

4.2.9 Alternative 9: Protect Mill Creek Corridor and High Value Wetlands

This alternative (shown in **Figure 4-9**) would protect and restore **690 acres** of unprotected wetlands in the Mill Creek corridor, wetlands adjoining Mullen Slough and the Green River, wetlands in the 100-year floodplain as defined by FEMA and wetlands on the western plateau. Streams and other water bodies would also be restored as outlined in the Restoration Plan. Also, about 284 acres of already protected wetlands would be restored. About **177 acres** of unprotected wetlands would be available for development. This alternative incorporates features from alternatives 2, 3, 5, and 8 to restore an ecologically viable ecosystem, provide for adequate flood hazard reduction, implement water quality improvement measures described in the Mill Creek Water Quality Management Plan, and provide land for economic development. Wetlands to be restored and protected in this alternative meet one or more of the following criteria:

a. Part of the Mill Creek corridor;

b. The wetland Indicator Value Assessment (IVA) points for the wetland are in the top one-third of function group ratings for the fish habitat, wildlife habitat, and water quality (see paragraph 4.3.2 and Appendix C for an explanation of the IVA methodology);

c. The wetland IVA points are in the top tenth percentile of those evaluated for this plan for any one of the function groups: fish habitat, wildlife habitat, or water quality.

4.3 EVALUATION CRITERIA AND METHODOLOGY

4.3.1 Introduction

Each of the alternatives was evaluated in terms of how well it would result in achieving the SAMP goals and objectives using the measures shown in **Table 4.1.** The basis for these measures is explained in the following paragraphs.

TABLE 4-2. EVALUATION CRITERIA USED FOR SAMP ALTERNATIVES

GOALS	**MEASURES** (more is better)
Resource Protection: Maintain or Improve Aquatic Resource Levels - minimum requirement is no net loss of aquatic functions and values	IVA points for fish habitat, other wildlife habitat, water quality; minimum requirement measured by no net loss of IVA points
Flood Hazard Reduction	Reduced flood peaks, duration, volume.
Water Quality Improvement	IVA points for water quality
Economic Development: Accommodate development to meet county-wide population and employment growth policies	Acres of land available for development or redevelopment
Implementation: Predictable, Consistent Permit Process; EPA 404(b)(1) Guidelines met	Agreement reached on which aquatic sites may be developed, and which protected
Provide for Long-term Maintenance of Aquatic Sites	Maintenance plan outlined and funded.
Land Acquisition and Financing	Approach most realistic, stands best chance of being implemented
Public Access and Recreational Use	(no measure at present)

4.3.2 Discussion: Resource Protection, Water Quality Improvement Measures

The SAMP committee scored each alternative in terms of how well it protected and/or restored important wetland functions. The indicator value assessment (IVA) methodology developed by Hruby and others (1995) was used to develop these scores. The resulting scores are shown for

each alternative in the second through fourth columns of **Tables 4.3 and 4.4**. Each column shows the score for one of three groups of wetland functions: fish habitat, other wildlife habitat, and water quality. The six-step process used to develop these scores is summarized below. For more detail on the IVA method, see Appendix C. For an alternative to be achieve these goals and be consistent with Federal policy under the Clean Water Act, there could be no net loss of aquatic functions and values. The IVA methodology helps make this determination.

Select Functions to Assess. The SAMP committee, with the assistance of natural resource professionals from their respective agency technical staffs, identified thirteen prime wetland functions in the basin:

- Floodflow alteration and desynchronization
- Sediment/Toxicant Retention
- Sediment Stabilization
- Groundwater Recharge
- Groundwater Discharge
- Aquatic Diversity/Abundance
- Wildlife Diversity/Abundance
- Wildlife Breeding
- Wildlife Wintering
- Nutrient Removal/Transformation
- Primary Production and Production Export
- Recreation
- Uniqueness/Heritage

Identify Indicators for Each Function. The SAMP committee then identified 133 wetland indicators from the Wetland Evaluation Technique (WET) (Adamus 1987) supplemented with 22 indicators used in the Washington State Wetland Rating System (WDE 1993).

Assign Scores to Indicators. The SAMP committee numerically weighted each of the wetland function indicators in terms of whether it was a basic indicator, a strong indicator, a very strong indicator, or indicator of a dysfunctional situation. The weighting was based on committee members' best professional judgment and knowledge of basin wetlands.

Estimate Performance Scores. Using WET field data collected in 1991 for each wetland and best professional judgment, the SAMP committee then determined which of the 155 indicators of wetland functions were present at each wetland site. Then, using the numerically weighted indicators from the previous step, a raw score was calculated for the importance of each the 12 functions in each wetland.

Establish the Relative Social Importance of Functions. The SAMP committee then combined the 12 functions into three equally important function groups: fish habitat, habitat for other species, and water quality improvement. Within each function group, individual functions were accorded the same weight. The SAMP committee considered, but did not adopt the idea of according a relatively greater social significance to one or more functions, and the idea of

including a greater number of groups. Recreation and uniqueness functions were not carried forward in this evaluation because the SAMP committee considered them relatively insignificant functions as far as determining whether a wetland should or should not be protected. The floodflow alternation function was also not carried forward because hydrologic and hydraulic information was not available with which to make meaningful assessments of each wetland's contribution to the floodflow function.

Estimate Value Scores of Wetlands. After the function groups and the weighting within each group were decided, the value scores for each wetland for each function group were calculated first by normalizing within a function, then adding the normalized scores for a function group together, and re-normalizing. This last score is normalized on a scale of 0 - 100 with 100 representing the highest ranked wetland for a particular function group. It represents the value per acre of a function in a wetland relative to all the other wetlands. The IVA points shown in **Tables 4.3 and 4.4** are these values per acre multiplied by the number of acres for each wetland that would be filled or protected as the case may be in each alternative.

The impacts of the different alternatives on regional water quality were also assessed by comparing the changes in land use for each alternative. Since the type of development proposed under each alternative is the same as that recognized by the National Urban Runoff Prediction model (NURP) (Tasker and Driver, 1988), no qualitative differences in pollution loading would be expected. Therefore, the differences in water quality impacts among the different alternatives were based on the total area developed for each alternative (see column 5 in Tables 4.3 and 4.4). This value was supplemented by a measure of increases in impervious surfaces (see column 6).

4.3.3 Discussion: Flood Hazard Reduction

The SAMP committee chose a flood control alternative from among five alternatives developed for the draft Mill Creek Flood Control Plan, Phase II as a common element of all the SAMP alternatives. So although the amount of flooding varies somewhat among the SAMP alternatives, there are no differences among the alternatives in terms of the design of the flood control components. The selected flood control alternative, alternative E, a hybrid of alternatives B, C, and D, was chosen for the following reasons. First, it has the greatest potential for aquatic resource protection and restoration opportunities. Second, it has the greatest potential for substantial reductions in peak water surface elevations at certain critical locations to facilitate stormwater drainage in developed areas on the valley floor. It also should decrease the duration of flooding and saturated soil conditions on some agricultural lands. For further explanation of the flood control alternatives evaluation process, readers should review the report entitled Flood Control Plan, Phase II.

The increase in impervious surface due to urbanization and the amount of area to be filled in the 100-year floodplain were also used to assess potential flood impacts of each alternative. Without adequate detention, this increase in impervious surface would lead to greater runoff and less infiltration of stormwater, resulting in increased flooding. Development in the 100-year floodplain reduces flood- and stormwater storage capacity and would tend to raise floodwater levels.

4.3.4 Discussion: Economic Development

Achievement of the economic goal and objectives were measured by the increase in acreage available for development. Generally, the more wetland acreage available for development, the greater the contribution to economic development objectives. The acres of upland suitable for development were assumed to be the same for all alternatives. Consideration was also given to adopting other measures of economic development such as the number of jobs per acre or the increase in number of jobs per acre. They were not included at this level of analysis because some types of economic activity meet basic needs even if the number of jobs per acre or dollars of income generated is relatively low. A good example is warehousing which has a relatively low jobs per acre ratio even if two-story warehouses would be required.

4.3.5 Discussion: Implementation

Once agreement among agencies and local governments is reached on which aquatic sites may be developed under certain conditions, and which would be protected, the outcome of the Department of Army and local permit processes would become more predictable and consistent. The length of permit processes would not vary among alternatives. However, other administrative procedures proposed for implementation of the SAMP in Chapter 6 (The Permit Process Under the SAMP) would help streamline permit application processes.

A crucial aspect of implementation is whether it is possible for the EPA and Corps to show that a given alternative would meet EPA 404(b)(1) Guidelines. If an alternative would not comply with the Guidelines, then the Corps could not agree with the designation of developable and protected sites for that particular alternative. The next few paragraphs outline briefly what are the requirements of the Guidelines and how alternatives would be evaluated under the Guidelines. This section of the SAMP is meant to provide a screening level evaluation of which alternatives would likely with the Guidelines and would thereby be practicable to implement. This section is not detailed enough for the Corps to use it as a basis for determining that a given alternative complies with the 404(b)(1) Guidelines. The Corps would prepare a detailed 404(b)(1) evaluation of compliance with the Guidelines as part of the documentation for the Department of Army permit (see Chapter 6).

The Guidelines requirements are slightly different depending on whether the Corps is contemplating issuing a standard individual permit or a regional general permit. For standard permits the Guidelines require (among other things) the Corps determine on a case-by-case basis: that there are no practicable, environmentally less damaging alternatives available (i.e. avoidance); that there will not be a significant degradation of waters of the U.S.; and that appropriate and practicable steps have been taken to minimize potential adverse impacts on the aquatic ecosystem (40 CFR 230.5 and 230.10). If a standard permit is being issued for an individual project which is within a comprehensive basin plan area such as the Mill Creek SAMP, the Corps and EPA may deviate from the usual mitigation sequence of avoidance, minimization, and compensatory mitigation as long as the two agencies agree that the proposed work in the plan area's aquatic sites can reasonably be expected to result in environmental gain

or insignificant environmental losses (U.S. EPA 1990). The Guidelines are similar for regional general permits, except that: consideration of alternatives is not directly applicable; the permitted activities must have only minimal adverse impacts (separately or cumulatively) on the aquatic environment; and the permitted activities must be similar in nature and impact (40 CFR 230.7).

Therefore, the Corps could issue a Department of Army standard individual permits for individual projects which fall within the SAMP area as long as overall basin environmental losses would be insignificant. In evaluating compliance of a particular project with the 404(b)(1) Guidelines and determining whether environmental losses would be insignificant, the Corps could consider all types of mitigation at the same time, including the availability of practicable alternative sites for development and compensatory mitigation. Alternatively, the Corps could issue a Department of Army regional general permit for a given SAMP alternative for discrete categories of activities such as commercial-industrial buildings and associated access roads; and flood and stormwater control structures, outfalls, or berms. The adverse aquatic environmental impacts would have to be minimal. As with standard individual permits, determinations of adverse impacts would be made on an ecosystem (basin-wide) basis. Compensatory mitigation measures also could be considered at the same time as avoidance and minimization measures.

4.3.6 Discussion: Aquatic Resource Management

Attainment of this goal would not vary by alternative. Attainment would be indicated by evidence that an aquatic resource maintenance plan is in place and funded for specific sites and situations.

4.3.7 Discussion: Land Acquisition and Financing

Finding ways to finance acquisition and restoration of basin aquatic sites is crucial to the success of the SAMP. Therefore, financial approaches that appear most promising and realistic for maintaining and improving wetland functions and values indicate the potential for success in achieving this goal.

4.4 ALTERNATIVES EVALUATION RESULTS

Tables 4-3 and **4-4** show how and to what extent each alternative meets the evaluation criteria for environmental protection/restoration and economic development. **Table 4-3** shows a comparison of the gross impacts of each of the alternatives before adverse impacts are further minimized by the provision of compensatory mitigation. **Table 4-4** provides a comparison of each of the alternatives after compensatory mitigation on aquatic sites with high and medium restoration potentials is included. Each alternative is discussed briefly in the numbered paragraphs below. Achievement of the flood hazard reduction goal is discussed separately in the next paragraph because it is a common element of nearly all the alternatives.

Alternatives 2, 5, 8, and 9 would achieve the flood hazard reduction goal to about the same degree. Flood control alternative E would lower peak and non-peak flows (water surface

elevations) by 1 to 2 feet in areas upstream of 277th St. assuming future buildout conditions in upland areas of the basin and levels of wetland protection similar to that in alternatives 2, 5, 8, and 9. In the extreme case represented by alternative 1 (all fill), the effect of the flood control alternative E would be entirely neutralized. In the median case represented by alternative 6 (Status Quo), flood flows would be reduced by only about 0.5 to 1 foot. Note that in no case would alternative E reduce the volume of water that is expected to pass through Mill Creek as a result of upland build-out conditions. Only additional upland storage and groundwater infiltration would reduce the total volume of water entering the lower valley of Mill Creek. Flood control alternative E would only alter water surface elevations and peak flow rates . Also note that the degree of these changes will vary from location to location because of local variations in stream hydraulic conditions.

The flood hazard reduction plan will play a substantial role in the extent to which each alternative would achieve the SAMP's land acquisition and financing goal. This role can be described only in general term as of this writing because work on estimates of the amount of aquatic site restoration that would be directly funded under the flood control plan is still in progress. Under the flood control plan, King County, Auburn, and Kent and any appropriate flood control or other special district would fund what are strictly flood control features of the plan including compensatory mitigation for adverse impacts to wetlands and other aquatic resources. Features of the flood control plan that could be characterized as primarily habitat restoration would be funded from other sources including conservation and park funds, special levies, and compensatory mitigation offered by developers for the right to build on other basin wetlands as outlined in the SAMP.

4.4.1 Alternative 1: Full Development

EPA 404(b)(1) Guidelines, and Corps and local regulations require that there be no significant degradation of the aquatic environment and that compensatory mitigation be provided for impacts that cannot be avoided or minimized. This alternative does not meet these requirements as indicated by the negative IVA scores shown in **Table 4-4**. Although it might be possible to compensate for lost functions and values by restoring the aquatic environment in other basins, this clearly does not meet the goals of this plan and local policies and ordinances which are aimed at maintaining and improving aquatic functions in the Mill Creek Basin.

4.4.2 Alternative 2: No Net Loss of Acreage

This alternative would achieve the resource protection goal by virtue of protecting all unprotected basin wetlands and larger streams. It would also marginally improve current levels of resource protection and water quality as indicated by the IVA scores in **Table 4-4**. The economic development goal would be supported in that about 94 acres of low value wetlands would be available for development. However, this contribution would contribute minimally to regional needs as only one site larger than 10 acres is included. The land acquisition and financing goal would probably not be achieved because the approach to land acquisition is not entirely realistic. Results of recent referenda in King County indicate that a majority of voters are not willing to fund park and resource conservation measures much beyond existing levels. Elected officials have other means to finance protection of some aquatic sites in the basin through bonds and revenues if protection of these sites would be high enough in priority relative

to other King County needs, but certainly not enough to fund protection of all unprotected wetlands.

4.4.3 Alternative 3: Protect Existing High Value Wetlands

This alternative would not meet or only marginally meet the SAMP goal for resource protection as indicated by IVA scores in **Table 4-4**. Under this alternative 345 acres of wetlands would be made available for economic development. At least seven tracts greater than 10 acres in size would be available compared to at least six tracts in alternative 8. The land acquisition and financing goal would likely be achieved because compensatory mitigation could ensure restoration of all restorable wetlands: those currently protected and those proposed for protection under this alternative.

4.4.4 Alternative 4: Road Encroachment

This alternative would only partly meet the SAMP goal for resource protection as indicated by IVA scores in **Table 4-4**. Water quality improvement functions would be slightly degraded. While the substantial acreage available for development helps this alternative meet the goal for economic development, much of the land would be in smaller tracts. Large tracts greater than 10 acres in size are in the shortest supply. Urban development infrastructure needs may be met more cheaply under this alternative, but a cost comparison for all the alternatives was beyond the resources available to the SAMP Committee.

4.4.5 Alternative 5: Citizen Advisory Committee (CAC) Alternative

This alternative would meet all the SAMP goals. A limitation of this alternative is that a small amount of development would occur within the Mill Creek 100-year floodplain. Such development would be inconsistent with local ordinances. Five tracts slightly greater than 10 acres in size would be formed as a result of allowing development in some wetlands. Compensatory mitigation for wetlands slated for development would be sufficient to acquire and restore the currently the unprotected wetlands. Additional public and private contributions or initiatives would be required to restore wetlands and other aquatic resources in already protected areas. Based on restoration costs developed elsewhere in this plan and the acreage involved, the required funds or in-kind services would probably be obtainable by local governments. The main advantage of the CAC's alternative, especially compared to the Protect Mill Creek Corridor alternative 8, is that fewer wetland acres would be developed.

4.4.6 Alternative 6: Status Quo

If owners and developers decide to use the Mill Creek Restoration Plan, this alternative would result in achieving the resource protection and water quality improvement goals because existing Federal and local requirements for compensatory mitigation would result in no net loss, and possibly even net gains in aquatic resource functions and values. Absent opposition from regulatory agencies, many developers/owners would choose to place compensatory mitigation at the most economical locations which have high restoration potentials both in and outside the basin. There would be no assurance that Mill Creek wetlands and streams would be protected and restored as a contiguous ecological tract. Further fragmentation of the remaining wetlands could be a problem.

4.4.7 Alternative 7: No Development

This alternative would minimally achieve the resource protection goal, but without at least minimal restoration efforts, the water quality improvement goal would not be met. Many of the other alternatives in which aquatic resource restoration plays a big role, are much more successful in achieving these two goals. This alternative would also not result in achieving the economic development goal. The implementation goal would also not be achieved because landowners, developers and local governments would be unlikely to agree to prohibit any further development. Unless the water quality anti-degradation clause in EPA's 404(b)(1) Guidelines was invoked, the Corps would still need to evaluate permit applications for the placement of fill in aquatic sites.

4.4.8 Alternative 8: Protect Mill Creek Corridor

This alternative would result in achievement of all the goals. As shown in Table 4-4, this alternative would have among the highest IVA scores for resource protection and water quality improvement. The IVA scores for wildlife habitat and fish habitat represent a net improvement of about 20 percent (see explanation in Chapter 5.2.3). This alternative would result in achieving the economic goal to the maximum extent possible in that the 284 acres represents the maximum developable acreage for which there are suitable compensatory mitigation sites within the basin. This includes compensatory mitigation on 583 acres of currently unprotected wetlands and about 284 acres of wetlands currently protected under floodway and sensitive lands ordinances, and land set aside as compensatory mitigation for previous wetland fills. At least six tracts greater than 10 acres in size would be formed from wetlands, suitable for development. The main advantage and difference between this and the CAC's alternative 5 is that this alternative uses compensatory mitigation opportunities to the maximum extent possible to restore aquatic sites that are newly proposed in this alternative for protection, as well as to restore aquatic resources on already protected sites. Also, the acreage of individual, potentially developable tracts would be larger than in the CAC's alternative.

4.4.9 Alternative 9: Protect Mill Creek Corridor and High Value Wetlands

This alternative would result in the highest achievement of SAMP goals for resource protection and water quality improvement as shown in **Table 4-4**. This is based on the presumption that public and other funds and in-kind services would make it possible to purchase and restore about 200 acres of currently unprotected wetland. The balance of unprotected wetlands would be protected as compensatory mitigation for wetland development. Also, **284 acres** of already protected wetlands and other aquatic resources would be restored under this alternative. The IVA scores for wildlife habitat and fish habitat represent a net improvement of about 20 percent (see explanation in Chapter 5.2.3). Alternative 9 would not achieve the economic development goal as well as the two other potentially most practicable alternatives, the CAC's alternative 5 and the Protect Mill Creek Corridor alternative 8. This alternative would provide fewer acres of developable wetlands and fewer tracts greater than 10 acres in size. Compared to these other two alternatives, alternative 9 would not achieve the land acquisition and financing goal as well because funding from levies, bonds, and donations will in all likelihood be very limited. An advantage of this alternative (and alternative 2) is that it would protect more of the remaining

wetland land base leaving it to future decisionmakers to find ways to restore the aquatic resources on this land base. Protection of this land base may be or become especially important to some decisionmakers and interest groups. The other compensatory mitigation option, wetlands creation, is generally more prone to failure and expensive than restoration of existing wetlands.

4.5 RECOMMENDED ALTERNATIVE (Interagency SAMP Committee)

The interagency SAMP Committee recommends implementation of alternative 8 (Protect Mill Creek Corridor). The alternative offers the surest, most realistic approach for financing protection and restoration of wetlands. It would not rely much on hard-to-come-by public funds and other contributions to protect wetlands. The alternative ranked among the top three alternatives for aquatic resource protection with **substantial net gains** in all three aquatic function groups. Adverse impacts to aquatic resources have been minimized as required by the EPA 404(b)(1) Guidelines: first, by generally limiting development to aquatic sites with relatively low functions and values; and second, by protecting and restoring aquatic resources that are already functioning at a high level or would function at a greatly improved level if restored. This alternative was also ranked high because it would maximize the acreage available for development consistent with maintaining and improving aquatic resource levels.

TABLE 4-3. IMPACTS OF ALTERNATIVES BEFORE RESTORATION

NET CHANGE ON:	FISH HABITAT	WILDLIFE HABITAT	WATER QUALITY IMPROVE-MENT	WETLAND ACRES TO BE RESTORED[7]	WETLAND ACRES TO BE DEVELOPED	INCREASE IN IMPERVIOUS SURFACE
UNITS	*IVA POINTS*	*IVA POINTS*	*IVA POINTS*	*ACRES*	*ACRES*	*ACRES*
ALTERNATIVES						
ALTERNATIVE 1 All Fill	-28005	-49864	-61287	0	867	749
ALTERNATIVE 2 No Net Loss of Acreage	-757	-4236	-5545	120	94	81
ALTERNATIVE 3 Protect High Value Wetlands	-5150	-17443	-21211	507	360	297
ALTERNATIVE 4 Road Encroachment	-10791	-19355	-24078	540	327	281
ALTERNATIVE 5 CAC	-5600	-11329	-14402	653	214	184
ALTERNATIVE 6 Status Quo	UNKNOWN	UNKNOWN	UNKNOWN	417[8]	450[8]	387
ALTERNATIVE 7 No Development	0	0	0	0	0	0
ALTERNATIVE 8 Protect Corridor	-3369	-14631	-19259	583	284	246
ALTERNATIVE 9 Protect Corridor & High Value Wetlands	-4806	-9572	-12045	690	177	157

[7] Up to 284 acres of currently protected wetlands including old incompletely restored mitigation sites and floodway areas not in the Farmland Preservation Program, could be restored. These acres are not included in the "to be restored acres" figures in this column. However, the restoration potentials are included in the IVA points columns.

[8] Adequate compensatory mitigation area may not be available within the Mill Creek Basin.

TABLE 4-4. IMPACTS OF ALTERNATIVES AFTER RESTORATION

NET CHANGE ON:	FISH HABITAT[9]	WILDLIFE HABITAT	WATER QUALITY IMPROVE-MENT	WETLAND ACRES TO BE RESTORED[10]	WETLAND ACRES TO BE DEVELOPED	INCREASE IN IMPERVIOUS SURFACE
UNITS	*IVA POINTS*	*IVA POINTS*	*IVA POINTS*	*ACRES*	*ACRES*	*ACRES*
ALTERNATIVES						
ALTERNATIVE 1 All Fill	-19445	-38619	-51139	0	867	749
ALTERNATIVE 2 No Net Loss of Acreage	6715	4983	3336	120	94	81
ALTERNATIVE 3 Protect High Value Wetlands	14197	7451	1229	507	360	297
ALTERNATIVE 4 Road Encroachment	5765	5852	-1287	540	327	281
ALTERNATIVE 5 CAC	14091	16656	10063	653	214	184
ALTERNATIVE 6 Status Quo	UNKNOWN	UNKNOWN	UNKNOWN	417[11]	450[8]	387
ALTERNATIVE 7 No Development	0	0	0	0	0	0
ALTERNATIVE 8 Protect Corridor	17325	11201	3886	583	284	246
ALTERNATIVE 9 Protect Corridor & High Value Wetlands	9580	10609	6234	690	177	157

[9] IVA points (and acreage mitigation ratios) for each alternative are understated in these columns because estimates do not include IVA points gained by restoring wetlands with low restoration potential. However, wetland acres with low restoration potential are included in the 'wetland acres to be restored' column.

[10] Up to 284 acres of currently protected wetlands including old incompletely restored mitigation sites and floodway areas not in the Farmland Preservation Program, could be restored. These acres are not included in the "to be restored acres" figures in this column. However, the restoration potentials are included in the IVA points columns.

[11] Adequate compensatory mitigation area may not be available within the Mill Creek Basin.

5. MINIMIZING AND MITIGATING UNAVOIDABLE ADVERSE IMPACTS

5.1 INTRODUCTION

To implement the preferred alternative identified in Chapter 4, compensatory mitigation will be required whenever there would be a loss of wetland functions and values due to development in any SAMP area wetland or stream. Wetlands and streams would also be acquired and restored by local governments and private organizations to provide overall environmental gain.

Compensatory mitigation refers to the replacement of wetland functions and values damaged or destroyed by an activity. The authority to require compensatory mitigation is contained in various Corps Section 404 permit regulations, EPA's Section 404 (b)(1) Guidelines (especially paragraph 230.10(d)), the Washington State Hydraulic Code (Chapter 75.20 RCW; Chapter 220-110 WAC), the Washington State Shoreline Management Act (Chapter 90.58 RCW; Chapter 173-14 through 173-28 WAC), and local environmental and wetland protection ordinances. Compensatory mitigation is a key element of the SAMP because it is a means to restore aquatic resource functions and values of the Mill Creek watershed as a whole, while enabling development on designated wetlands.

The Mill Creek Restoration Plan (Appendix D) is the blueprint describing where and generally how creation and restoration of wetlands and streams should occur in the basin. Some of the basin restoration is planned through property acquisition and aquatic resource restoration and creation efforts led by local governments and private individuals and organizations. Another portion would be restored by developers as compensatory mitigation for the loss of wetland functions and values on wetland property they would develop in the Mill Creek Basin. Some wetlands would also be restored as compensatory mitigation or direct beneficial improvements related to storm- and floodwater retention projects. Water from storm- and floodwater retention projects may be discharged into Mill Creek streams and wetlands, but its quality must be at least as good as that currently discharged into the stream or wetland. Otherwise, it must be pre-treated to improve water quality.

Each compensatory mitigation project would be built as a part of this overall restoration plan. The restoration plan:

- identifies stream segments and 47 wetlands particularly suitable for enhancement or restoration;

- prescribes restoration measures generally appropriate for each area; and

- provides examples of conceptual restoration plans.

The Restoration Plan is based on the interagency SAMP Committee's best professional judgment that allowing out-of-kind and off-site mitigation would result in a more interconnected, fully functional ecosystem in the Mill Creek Basin. Therefore, mitigation need not be on-site or in-kind as long as it conforms to the recommendations of the SAMP Restoration Plan, adequately compensates for the performance of functions and values lost through the development actions, and conforms to Department of Army and local permit conditions.

The restoration opportunities in the Mill Creek Basin are substantial enough that for some alternatives (see Chapter 4) a limited amount of restoration could occur as compensatory mitigation for loss of wetlands (functions) outside the basin.

5.2 HOW WOULD THE AMOUNT OF COMPENSATORY MITIGATION BE DETERMINED FOR INDIVIDUAL PROJECTS?

5.2.1 Overview

The process of computing the amount of compensatory mitigation required is designed to be simple to apply. First, the applicant must delineate wetland boundaries/areas on the proposed development site. Then, the applicant must take appropriate and practicable steps to minimize potential adverse impacts on or adjacent to the site. Once this has been demonstrated to the satisfaction of the Technical Oversight Committee (TOC) (the TOC's role is explained more fully in Chapter 6, The Permit Process), the applicant/TOC can compute the acres (or linear feet of stream) of mitigation required based on the mitigation ratios described in the sections below.

The compensatory mitigation ratios generally range between 1:1 and 2.9:1 in terms of acres depending on the degree to which the mitigation area is already fully functional and whether the compensatory mitigation involves restoration or creation. This means, for example, that if 1 acre of wetland would be filled so that its wetland functions and values were eliminated, 2.9 acres of wetland in the SAMP area would need to be enhanced and protected from future development.

5.2.2 Indicator Value Assessment

The underlying method for measuring functions and values is more complicated. This involves using the Indicator Value Assessment (IVA) method, which is discussed in detail in Chapter 4.3.2, and Appendix C, to rank and score the current performance of each Mill Creek Basin wetland relative to all the others in each of 12 functions. This ranking was based on ratings an interagency committee of wetland scientists assigned each wetland using 155 regional indicators of whether and how well each wetland is currently performing.

Once the rating and ranking effort was completed, scores for the 12 functions were combined to form scores for three function groups: water quality improvement, fish habitat, and non-fish habitat. The 12 functions were combined to make the overall IVA process manageable. Each of the three function groups was considered to be of approximately equal absolute value relative to the others.

For each function group, the wetland with the highest rating was assigned a relative ranking score of 100 points per acre, the lowest ranking, a score of 1 point per acre.

A similar process was used to rank and score the restoration potential of each wetland. The main difference was that specific restorative actions and their likely effects were first identified for each wetland. Then each wetland was rated, ranked, and scored for each function and function group as described above, as if it had actually been restored. The restoration potential of each wetland was then determined by taking the difference between the restored and current condition wetland scores: the greater the difference, the greater the restoration potential. The wetland restoration potentials became one of the factors used to formulate the Restoration Plan.

5.2.3 Mitigation Ratios and Computations.

Compensatory mitigation for lost wetland functions and values usually entails replacement of functions and values at a ratio greater than 1:1 to ensure full replacement of losses. Regulatory agencies use this approach because existing information and scientific consensus indicate that first, newly restored and created wetlands do not function at full potential for their first 30 to 50 years; second, a substantial number of restoration efforts either fail or fail to function as well as planned (Gwin and Kentula 1990; Rylko and Storm 1991; Storm and Stellini 1994). Since

statistical data are not readily available with which to ascertain the most accurate compensatory mitigation ratio, wetland scientists on the interagency SAMP Committee relied on their best professional judgment that a ratio of 1.25:1 in terms of IVA points would satisfactorily account for risk associated with compensatory mitigation (restoration and creation) and the time lag between wetland destruction and wetland replacement. Thus, for every IVA point that is lost in water quality improvement, fish habitat, or non-fish habitat, 1.25 points of compensation would be needed in each of the same categories. This ratio was also judged reasonable by the SAMP Citizens Advisory Committee.

To make it easy to measure and discuss compensatory mitigation requirements, IVA points were converted to acre figures as shown in **Table 5-1** using the procedure described below. For brevity, only the computations for wetland restoration are fully explained.

First, the respective average increases in IVA points per acre for wetland restoration in the preferred alternative were calculated. This was done in three sub-steps. First, each wetland's score in each function group for existing (baseline) conditions was determined. Second, each wetland's score in each function group was determined assuming that each wetland's functions had been restored to its full potential. Third, the difference between the baseline and restored condition IVA scores was calculated for each function group. These score represent the net improvement (gain) resulting from wetland restoration. The results of these calculations averaged for all the wetlands with high or medium restoration potential under the recommended alternative #8 were as follows: increases of 36 points/acre for fish habitat, 33 points/acre wildlife habitat, and 29 points/acre for water quality improvement. With the lowest increase in points per acre among the three function groups (25 compared to 30 and 31), the water quality improvement function would be the limiting factor in any wetland restoration project. In other words, in the process of meeting the minimum number of IVA points required to compensate for losses in the water quality function, one would not only just meet, but also exceed the restoration requirements for fish habitat and wildlife habitat by 20 percent.

The second major step was to compute how many acres of compensatory mitigation would be required on the average to compensate for an acre of wetland loss. This was done in two sub-steps. The computation needs to be done only for the water quality improvement function group since it is the limiting factor. First, based on the first sub-step in the preceding paragraph, the loss of 1 acre of wetland in its existing condition was observed as equivalent to an average of

about 68 IVA water quality improvement points under the recommended alternative #8.[12] Second, since restoration of 1 acre of wetland would produce a net improvement (gain) of 29 points per acre for water quality improvement, the number of IVA points lost per acre (68) was divided by the average number of IVA points per acre gained from restoration (29). The result of this computation (2.34) is multiplied by 1.25 to incorporate the 25 percent allowance for potential temporal and risk-of-failure allowances discussed above. This last computation gives an average compensatory mitigation ratio of 2.9:1 on an acre basis. Note that while the SAMP and the Restoration Plan address compensatory mitigation determinations in terms of averages for the sake of simplicity and ease of computation, these averages obscure the fact that for any particular site, the appropriate amount of com- pensatory compensation could be higher or lower than this average for each given function group.

TABLE 5-1. COMPENSATORY MITIGATION RATIOS

	Aquatic Site Protection Only (Preservation)	Feet of Stream Restoration per Acre of Wetland Fill	Wetland Creation (in Uplands and Former Wetlands)	Wetland Protection and Restoration
Replacement Ratios (Acres, All Wetland Types)	5:1	ratio not established as of this writing[13]	1.25:1	2.9:1

The ratios in Table 5-1 apply only to projects covered by the SAMP within the Mill Creek basin. Ratios may be different for projects which need individual permits because they are not consistent with the SAMP. Mitigation ratios are not wetland-type dependent because the mitigation would be used to implement an *overall* restoration plan for the Mill Creek basin.

There are two situations in which the ratios may be reduced to as low as 1:1 on an IVA point basis (equivalent to about 2.3:1 on an acre basis). First, if the compensatory mitigation is completed and fully functioning before the impacts are incurred so that there would be no risk of

[12] The average value of all 867 "unprotected" wetland acres in the Mill Creek basin is 32 points/acre for fish habitat, 58 points/acre for other wildlife habitat, and 71 points/acre for water quality improvement. The average IVA point value/acre for wetlands impacted by development in alternative #8: 12 for fish, 51 for wildlife, 68 for water quality.

[13] This ratio would be applicable only for stream segments not bordered by a wetland. Compensatory mitigation acreage requirements and stream restoration measures are already specified in the Restoration Plan for stream segments bordered by a wetland.

failure and no temporal loss of functions. Wetland functions could thus be replaced without any further risk or temporal loss at an acreage ratio as low as 2.3:1. For example, if a "mitigation bank" is established and has met its performance standards before impacts are incurred, the "credits" in the bank can be withdrawn at an IVA points ratio of 1:1. But note that if a bank is established but has not yet met its performance standards, credits would be withdrawn at the original ratio.

Second, the ratio can be reduced to an IVA points ratio of 1:1 if the compensatory mitigation includes more secure permanent protection for Mill Creek basin wetlands designated in the Restoration Plan for protection and/or restoration. To reduce the compensation requirements to the 1:1 ratio, an applicant would purchase and agree to permanently protect 5 acres of wetland for every acre fill. On this 5 acres, an applicant would also be required to restore up to 1 acre if restoration would be possible on the protected site as specified in the Restoration Plan. Wetland preservation is a desirable compensatory mitigation component because it is a means of protecting wetlands which, because of their existing relatively high (IVA points) value, are not prime restoration areas, but are nevertheless important for connecting all the pieces of the wetland system together.

5.3 PROCESS OF MITIGATION PLANNING

As described earlier in paragraph 5.2, when an applicant has delineated wetland boundaries/areas on the proposed development site and demonstrated to the satisfaction of the TOC that appropriate and practicable steps to minimize potential adverse impacts have been taken, the applicant can compute the acres (or linear feet of stream) of compensatory mitigation required and submit a conceptual mitigation plan to the TOC for review. The applicant may wish to schedule a pre-application review conference with the Corps, local government and TOC representatives either just before or after preparing the conceptual mitigation plan. The TOC will review the conceptual and detailed compensatory mitigation plans against criteria which include, but are not limited to, the following:

- That the compensatory mitigation would likely compensate for the fish habitat, wildlife habitat, and water quality improvement functions which would be lost through the development;

- That the compensatory mitigation plan conforms to the SAMP Restoration Plan and any relevant Federal, State and local permit requirements;

- That the compensatory mitigation plan is generally in accordance with mitigation plan guidance developed contained in *Guidelines for Developing Freshwater Wetlands Mitigation Plans and Proposals* published by the Washington Department of Ecology (Appendix I);

- That the compensatory mitigation would effectively reduce any potential increase in floodflow water surface elevation caused by the proposed development to zero ("zero" rise requirement); and

- That the compensatory mitigation would be located within the Mill Creek SAMP basin.

Other lands in the Mill Creek basin not specified for compensatory mitigation in the Restoration Plan could be used for such if the functions and values to be restored or created would meet the goals of the SAMP as determined by the TOC. In certain cases, however, some lands might not be deemed acceptable because of their isolated nature or high risk of failure.

Once the TOC approves the compensatory mitigation plan and the notification process is complete (see Chapter 6), the applicant may begin construction of the development and mitigation simultaneously or may begin the mitigation work in advance. **Applicants will be responsible for all costs associated with the mitigation project, including purchase of land, construction, monitoring, maintenance, and any additional work required under contingency requirements.**

All sites designated for compensatory mitigation must be protected by easements or covenants which would to preclude any further development which would be incompatible with the sites aquatic resource protection functions. A legal description of the easements must be recorded with the King County Registrar of Deeds. Easements may include wording to place the local city or King County in the chain of ownership to assure long-term preservation.

Generally, compensatory mitigation actions may not be planned on sites that contain toxic or hazardous wastes unless it is feasible to clean up the site first. A determination of no contamination must be made by qualified professionals before a site would be eligible for consideration as a compensatory mitigation site in questionable circumstances.

5.4 MITIGATION BANKING PROGRAM

To facilitate the compensatory mitigation process, mitigation banks could be set up to develop mitigation credits before development impacts occur. A mitigation banking program is a system in which the restoration, creation, or preservation of wetlands would be recognized by a regulatory agency as a mitigation bank with creation and restoration actions generating credits that may be used to compensate for multiple wetland or stream impacts. Generally these impacts would occur within the same basin as the mitigation bank.

The banked land could be used immediately as a mitigation area but the mitigation ratio would be higher than 1:1 (IVA points) until the compensatory mitigation improvements would be fully effective. The bank would be useful in reducing the permitting process time, in taking advantage of the economies of scale in doing one large mitigation project compared to piecing together many small projects, and its potential attractiveness to smaller developers who might not have sufficient capital to readily develop compensatory mitigation projects on their own. While not necessarily less costly to an applicant, an advantage of using a mitigation bank is that mitigation ratios would be lower because mitigation would have been already established and the probability of failure substantially reduced.

A mitigation banking agreement would have to be signed between the agency administering the bank and the signatories of the SAMP MOU before the bank could be used to meet SAMP compensatory mitigation requirements.

Applicants would neither be obligated nor automatically entitled to use a mitigation bank to meet the compensatory mitigation requirements of a given project. Applicants would negotiate directly with the administrator of the bank for the right to use it. Agreements between the director of the lead entity administering the bank and the applicant would be subject to approval of the regulatory agencies who normally review and grant permits.

6. THE PERMIT PROCESS UNDER THE SAMP

6.1 INTRODUCTION

A major objective of the SAMP under the implementation goal is to streamline the permitting process for regulating work in wetlands and streams. This objective is accomplished by deciding in advance where and under what conditions development in wetlands and streams may occur, and by integrating the three levels of permit review — Federal, State, and local — into one process. Permits from each level would not be eliminated. However, the government agencies would review applications simultaneously using consistent evaluation criteria, thus streamlining the overall permit process. Also, the agencies would reduce an individual applicant's processing time by completing part of the permit review and approval effort, such as environmental assessments and the 404(b)(1) Guidelines evaluation, before the applicant actually submits a site specific permit application.

This chapter is divided into three parts. First is a brief summary of which permits would be required for work in wetlands and streams. Second are actions that would occur before a regional general permit (RGP) or standard individual permit (IP) would be issued by the Corps (collectively referred to as Department of the Army permits). Third are actions that would occur after a Department of the Army permit for the SAMP area was issued including the review of individual permit applications.

6.2 REQUIRED PERMITS

Following is a list of permits which would be required for any development in a Mill Creek SAMP area wetland or stream:

6.2.1 A standard individual permit if the Corps has not already issued a regional general permit covering the discharge of fill into wetlands and streams in the entire basin. The Corps would complete several normally time-consuming documentation tasks in advance of receiving applications for site-specific projects so that issuance of a standard individual permit for projects/activities consistent with the SAMP could be expedited. If the Corps has issued a RGP, then the Corps would issue a verification letter in response to an application for a specific project. If this proposed project was consistent with the SAMP and the RGP conditions, the verification letter would state that proposed work complied with the terms and conditions of the RGP. The Corps (Seattle District) would issue the Department of Army permits and associated verification letters under authority of Section 404 of the Federal Clean Water Act. If the

proposed work would not qualify for a verification letter, applicants could apply directly to the Corps for a site-specific standard individual permit as they may do under current procedures.

6.2.2 Washington State Department of Ecology (WDE) 401 Water Quality Certification.

6.2.3 Washington State Department of Fish and Wildlife (WDFW) Hydraulic Project Approval (HPA) if work would be in a ditch, stream, or lake.

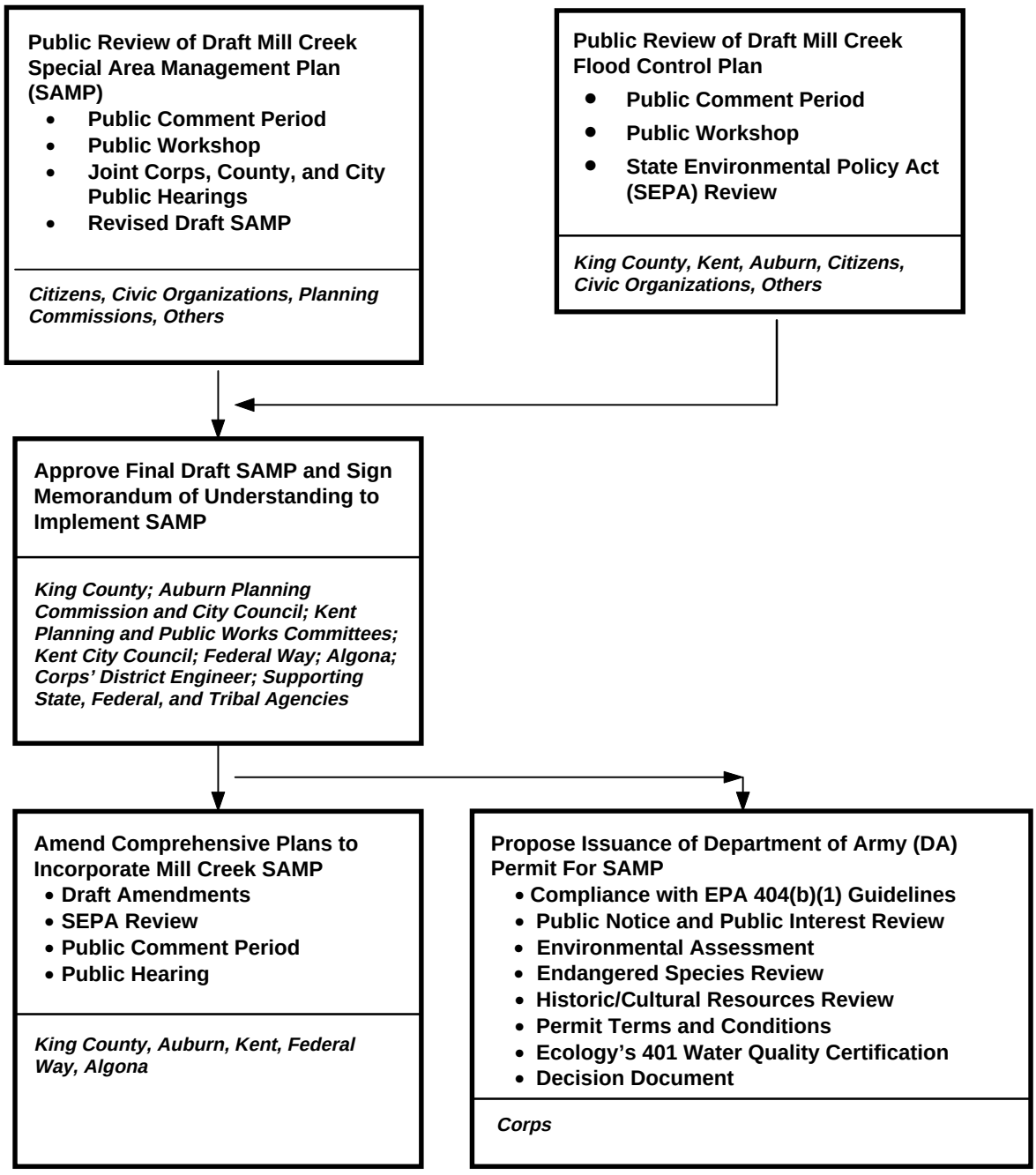
6.2.4 City of Auburn Public Works Department, Kent Building Division, or King County Department Development and Environmental Services grading permit. These jurisdictions would also issue a building permit.

6.2.5 City of Auburn, Kent, or King County Shoreline Substantial Development Permit if the work is within 200 feet of the Green River or any wetlands adjoining the river.

6.3 ACTIONS PRECEDING ISSUANCE OF A DEPARTMENT OF ARMY PERMIT

6.3.1 Federal, State and local actions that would precede issuance of a Department of Army permit are outlined in **Figure 6-1**. The Corps would complete most of the environmental impact evaluation, cultural and historic resources survey, (Clean Water Act) Section 404(b)(1) evaluation, threatened and endangered species survey, public interest review, and associated administrative permit processing work before a Department of the Army Permit would be issued. The Corps would also organize any consultations required by Section 7 of the Endangered Species Act at this stage, and initiate actions to suspend Nationwide Permits 13 (Bank Stabilization), 14 (Road Crossings), 18 (Minor Discharges), 26 (Headwaters and Isolated Waters Discharges), and 29 (Single Family Housing). These nationwide permits would be suspended so that only projects and activities which were consistent with the SAMP and associated permits would be authorized. The Corps could issue a Department of Army permit for the Mill Creek SAMP if, based on the above assessments, the Corps determined that issuing the permit for the discharge of fill material in certain locations and under certain conditions would not be contrary to the public interest.

FIGURE 6-1.
ACTIONS LEADING TO IMPLEMENTATION OF THE SAMP



6.3.2 The Corps' North Pacific Division Commander, King County, and the cities of Kent and Auburn would sign a memorandum of understanding (MOU) adopting the Mill Creek SAMP including its overall wetland and stream corridor restoration program.

6.3.3 The local jurisdiction would complete a Washington State Environmental Policy Act (SEPA) checklist to determine on a programmatic basis what impacts each kind of proposed project activity would have on the environment. Similarly, the Corps would conduct an environmental assessment under authority of the National Environmental Policy Act (NEPA). These determinations would be incorporated by reference into the Mill Creek SAMP. Environmental impact statements would be prepared if required. Typical activities would include wetland and stream restoration; the discharge of fill and excavation in wetlands; the construction of buildings and other structures, and stormwater detention facility construction and operation.

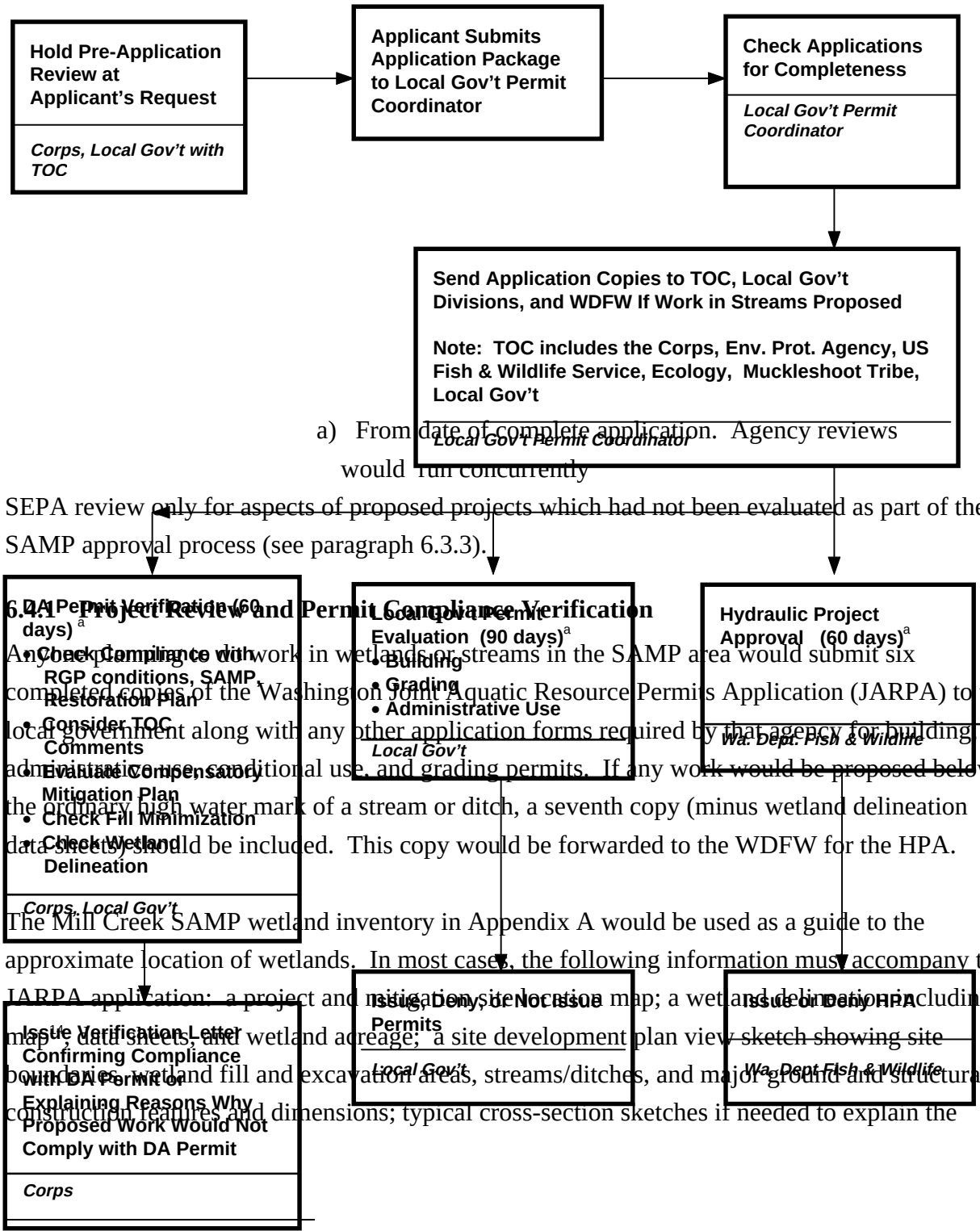
6.3.4 The Washington Department of Ecology could issue a Section 401 (Clean Water Act) Water Quality Certification which would become part of the Department of Army permit.

6.4 PERMIT APPLICATION PROCESS DESCRIPTION

Once a Department of the Army permit has been issued, developers or owners would notify the permitting agencies (the appropriate local government and the Corps) of their intention to fill or modify an aquatic site. The main purpose of the notification process would be to allow the permitting agencies to verify that the proposed project would comply with the SAMP and any other relevant conditions of the Department of the Army and local government permits. A flow diagram of the project review and approval process is shown in **Figure 6-2**. An informational draft of possible Department of the Army permit components is shown in **Figure 6-3**.

The Corps would complete its portion of the permit compliance verification process within 60 days of receipt of a complete permit application. The WDFW also would complete its review for a Hydraulic Project Approval (HPA) within 60 days for any work proposed below the ordinary high water of a stream or ditch. Local government grading, shoreline, building, and administrative use permits would require 14 to 100 days, depending on the type of permit and proposed work. Local governments would conduct a case-by-case

FIGURE 6-2. PERMIT APPLICATION PROCESS UNDER THE SAMP



a) From date of complete application. Agency reviews would run concurrently

SEPA review only for aspects of proposed projects which had not been evaluated as part of the SAMP approval process (see paragraph 6.3.3).

6.4.1 Project Review and Permit Compliance Verification

Any people planning to do work in wetlands or streams in the SAMP area would submit six completed copies of the Washington Joint Aquatic Resource Permits Application (JARPA) to the local government along with any other application forms required by that agency for building, administrative use, conditional use, and grading permits. If any work would be proposed below the ordinary high water mark of a stream or ditch, a seventh copy (minus wetland delineation data sheets) should be included. This copy would be forwarded to the WDFW for the HPA.

The Mill Creek SAMP wetland inventory in Appendix A would be used as a guide to the approximate location of wetlands. In most cases, the following information must accompany the JARPA application: a project and mitigation site location map; a wetland delineation including map(s), data sheets, and wetland acreage; a site development plan view sketch showing site boundaries, wetland fill and excavation areas, streams/ditches, and major ground and structural construction features and dimensions; typical cross-section sketches if needed to explain the

[14] Professionally surveyed boundaries not required.

proposal more clearly; a conceptual and/or detailed compensatory mitigation site plan; and a brief description of the proposed project's purpose.

6.4.2 Notify Review Agencies, and Receive and Consider Comments

The local government would check the notification information for completeness, work with the applicant to obtain any missing information, and then forward a complete notification to the Corps, to the WDFW if an HPA may be required, and to the Technical Oversight Committee (TOC). The TOC would be an interagency committee with responsibility, among other things, to review compensatory mitigation plans. It would not have independent decisionmaking authority of its own, but two of its members -- the Corps and the local government—would have such authority . The TOC would also include regular advisory members: the EPA, NMFS, WDE, and the MIT. As needed, the TOC would draw on other organizations and public agencies for expertise and advice.

6.4.3 Review Notification for Compliance with SAMP and Permit Requirements

The Corps would conduct this review using the following criteria:

1. The proposed work complies with the SAMP, including particularly the kinds of activities that are designated under the approved alternative for each wetland area (e.g. fill and excavation for commercial industrial development; flood- and stormwater detention and water quality polishing; aquatic resource protection and restoration);

2. The proposed work complies with the terms and conditions of the Department of Army permit;

3. Proposed compensatory mitigation lies within the Mill Creek SAMP area, conforms to the SAMP Restoration Plan, and adequately compensates for the functions and values which would be lost as a result of the proposed project;

4. The proposed project effectively prevents any increase in flood stage and off-site flow rates; and

5. Adverse impacts of the proposed project upon wetlands and streams have been minimized on-site to the maximum extent practicable, consistent with the project's purpose.

The Corps, local government, and TOC would advise the applicant of the advantages and ways of minimizing adverse impacts on-site. The Corps and local government would advise the TOC as soon as possible of any changes in the applicant's proposal that would increase or decrease impacts.

6.4.4 Verify Wetland Boundaries

Concurrently with the notification review, the Corps would verify the accuracy of the applicant's wetland delineation for wetlands potentially affected by the proposed work including the mitigation site. Applicants must delineate and stake the boundaries of the wetlands based on criteria and methods described in the *Corps of Engineers Wetlands Delineation Manual*, dated January 1987, or any subsequently implemented manual. The boundaries must be accurately mapped after the Corps verifies the delineation.

6.4.5 Issue Verification Letter/Permits with Conditions As Required

The Corps would issue a permit verification letter within 60 days of receipt of a complete application. Verification approval may be conditioned upon submission of an acceptable mitigation plan if agreement is not reached on a detailed mitigation plan during the 60-day review period. If the Corps determined the proposed work would not meet the Department of Army permit requirements, the Corps would explain the reasons in writing and advise the applicant of the options to either modify their proposal or apply for an individual permit.

6.5 PERMIT PROCESS OVERSIGHT

The TOC will monitor the SAMP permit process to ascertain whether it shortens and simplifies the permit process for applicants. The TOC would also monitor the compliance of permit issuers with SAMP permit procedures, conditions, and evaluation criteria. The TOC's effort will be part of the overall SAMP monitoring effort described in Chapter 7 to be written). In evaluating the effectiveness of the SAMP permit process, reviewers will consult with and consider the comments of the other agencies, former applicants, and citizens committee representatives responsible for formulating the SAMP. The Corps' District Engineer would retain his/her authority under regulation 33 CFR 325.2(e)(2) to override the Department of Army permit for the SAMP and require an individual permit on a case-by-case basis.

FIGURE 6-3.
PRELIMINARY DRAFT, DEPARTMENT OF THE ARMY PERMIT COMPONENTS

DEPARTMENT OF THE ARMY PERMIT
MILL CREEK SPECIAL AREA MANAGEMENT PLAN
KING COUNTY, WASHINGTON

1. Permit Authority. Section 404 of the Federal Clean Water Act.

2. Location. Mill Creek Basin generally in the city of Auburn west and north of the old city center, in King County, Washington. The permit area specifically consists of waters of the U.S., including wetlands, on the valley floor and hillside and plateau areas drained by Mill Creek, Mullen Slough, Auburn and Midway Creeks; areas draining directly into the Green River in the vicinity of these drainages; hillsides; and plateau west of the Green River as shown in Figure ._ .

3. Categories of Activities. Undesignated wetlands, should any be found, would be added to the SAMP at times identified for updating the SAMP.

a. Category 1: Commercial and Industrial Development. Discharges of fill or work in aquatic sites for the purpose of commercial or industrial buildings and associated facilities (including driveways and loading facility access, parking where land coverage for this purpose has been minimized to the maximum extent practicable) at SAMP sites designated as developable in Figure __ for the recommended SAMP alternative.

b. Category 2: Flood Control and Stormwater Retention/Detention Structures. This permit authorizes the discharge of fill and excavation work as described in the Mill Creek Flood Control Plan and accompanying SAMP flood control over lay map (**Figure 4.2** in the SAMP). This permit also authorizes discharges of fill for berms less than 5 feet high in any SAMP wetland for the purpose of retaining flood- and stormwater. The berms may not be constructed for the direct or indirect purpose of altering the hydrologic regime of any wetlands other than those designated for development under category 1. The closest edge of the berms must be set back at least 50 feet from the center of Mill Creek. The stormwater entering aquatic sites behind the berms must meet State water quality standards at the point of inflow. These standards may be exceeded where permitted by the State of Washington as long as pollutant levels do not exceed levels and patterns generally in existence at the time of the SAMP was originally adopted. The flood- and stormwater must not cause flood depths in existing wetlands to exceed 1 foot average depth for more than 2 days during the growing season each year (1 March through 30 November). Exceptions to this last requirement may be made for the purpose of eradicating or controlling *Phalaris arundinaceae,* or when it can be demonstrated there would be a beneficial effect to fish and wildlife productivity, diversity and habitat considering the Mill Creek ecosystem as a whole. This last requirement may also be waived for up to 100 acres at any one time when the purposes of the variance would be for research and development of water management control strategies and impact assessment.

c. Category 3: Wetland and Stream Restoration, Enhancement, Creation, and Preservation. Excavation or the discharge of fill into any SAMP wetland or stream for the purpose of wetland/stream restoration, enhancement, creation, and preservation, including weirs, culverts, water control structures, large organic debris, bank protection and spawning enhancement materials.

4. General Conditions.

a. Notification. A prospective permittee must receive a written verification from the District Engineer, Seattle District, Corps of Engineers that the proposed work is in compliance with this regional general permit before doing work of any kind in wetlands or streams not already authorized by another regional, nationwide, or standard individual permit within the Mill Creek SAMP. Specific procedures described in the SAMP (especially Chapters 5 and 6) for requesting a verification are incorporated by reference.

b. Nationwide Permits 13 (Bank Stabilization), 14 (Road Crossings), 18 (Minor Discharges), 26 (Headwaters and Isolated Waters Discharges), and 29 (Single Family Housing) are suspended within the designated Mill Creek SAMP boundaries. Maintenance and replacement of existing and/or approved structures in wetlands and streams would still be authorized by Nationwide Permit 3 (Maintenance).

c. Compensatory Mitigation Areas. Work is not authorized in waters of the U.S. under this permit unless the District Engineer approves a compensatory mitigation plan for the proposed work. The wetland or stream area provided as compensatory mitigation for work authorized by this permit shall not be made the subject of a future individual or general Department of the Army permit application for fill or other development except for the purposes of creating, enhancing or restoring wetlands and streams in the mitigation area. In addition, a description of the mitigation area identified in the compensatory mitigation plan, and in any subsequent revisions, will be recorded with the King County Records and Elections Division within 1 month of work completion or 13 months of permit verification, whichever is sooner.

d. The first status report on the mitigation construction, including as-built drawings, must be submitted to the Regulatory Branch, Corps of Engineers, 13 months from the date of permit verification. Subsequently, annual status and monitoring reports are required until mitigation construction is complete.

e. Adverse impacts of proposed work upon wetlands, streams, and riparian vegetation must be minimized to the maximum extent practicable on-site consistent with the project purpose.

f. Erosion and Siltation Controls. Appropriate erosion and sediment and siltation controls described in the most current *Stormwater Management Manual for the Puget Sound Basin (Technical Manual), Volume II-Erosion and Sediment Control* (Washington Department of Ecology, February 1992, or latest edition) must be used and maintained in effective operating condition during and after construction. All exposed soil and other fills and excavations must be permanently stabilized at the earliest practicable date.

g. Equipment. Heavy equipment working in wetlands must be placed on mats or other measures must be taken to minimize soil disturbance.

h. All activities identified and authorized herein shall be consistent with the terms and conditions of this permit; any activities not specifically identified and authorized herein or by other valid Section 404 permit shall constitute a violation of the terms and conditions of this permit.

i. All activities authorized herein shall, if they involve, during their construction or operation, any discharge of pollutants into waters of the United States, be at all times consistent with applicable water quality standards, effluent limitations and standards of performance, prohibitions, pretreatment standards and management practices established pursuant to the Clean Water Act (Public Law 92-500; 86 Stat. 816) or pursuant to applicable State and local laws.

j. When the activity authorized herein involves a discharge during its construction or operation, or any pollutant (including dredged or fill material), into waters of the United States, the authorized activity shall, if applicable water quality standards are revised or modified during the term of this permit, be modified, if necessary, to conform with such revised or modified water quality standards within 6 months of the effective date of any revision or modification of water quality standards, or as directed by an implementation plan contained in such revised or modified standards, or within such longer period of time as the District Engineer, in consultation with the Regional Administrator of the Environmental Protection Agency, may determine to be reasonable under the circumstances.

k. No activity associated with this permit may jeopardize the continued existence of a threatened or endangered species or a species proposed for such designation, as

identified under the Endangered Species Act of 1973, or destroy or adversely modify the critical habitat of such species. Such adverse impacts may include but are not limited to loss of habitat, increased noise levels, and increased human activities other than during construction.

l. The permittee agrees to make every reasonable effort to execute the work authorized herein in a manner so as to minimize any adverse impact on fish, wildlife, and natural environmental values.

m. The permittee agrees to undertake the work authorized herein in a manner so as to prevent any degradation of water quality.

n. The permittee shall permit the District Engineer or his authorized representative(s) or designee(s) to make periodic inspections at any time deemed necessary in order to assure that the activity being performed under authority of this permit is in accordance with the terms and conditions prescribed herein.

o. The permittee shall maintain the structure or work authorized herein in good condition.

p. This permit does not convey any property rights, either in real estate or material, or any exclusive privileges; nor does it authorize any injury to property, invasion of rights, or any infringement of Federal, State, or local laws or regulations; nor does it obviate the requirement to obtain State or local assent required by law for the activity authorized herein.

q. This permit does not authorize the interference with any existing or proposed Federal project; nor shall the permittee be entitled to compensation for damage or injury to the structures or work authorized herein which may be caused by or result from existing or future operations undertaken by the United States in the public interest.

r. This permit may be either modified, suspended, or revoked, in whole or in part, if the Secretary of the Army or his authorized representative determines that activities identified and authorized within the terms or conditions of this permit are not in the public interest. Any such modification, suspension, or revocation shall become effective 30 days after issuance of public notice of such action. Within this 30-day period, permittees may request a public hearing to be held to present oral and written evidence concerning the proposed modification, suspension, or revocation. The conduct of this hearing and the procedures for

making a final decision either to modify, suspend, or revoke this permit in whole or in part shall be pursuant to procedures prescribed by the Chief of Engineers.

s. Any modification, suspension, or revocation of this permit shall not be the basis for any claim for damages against the United States.

t. If and when a permittee desires to abandon an activity authorized herein, he must restore the area to a condition satisfactory to the District Engineer.

u. The word "permittee" shall include such permittee's successors in interest.

v. Indian Tribal Rights. No activity or its operation may impair reserved tribal rights, including, but not limited to, reserved water rights and treaty fishing, hunting, and gathering rights.

w. Water Quality Certification. This permit is applicable only after the State of Washington issues a Section 401 Water Quality Certification or waiver.

x. Coastal Zone Management. This permit is applicable only to activities which are in accordance with Section 307 (c)(3) of the Coastal Zone Management Act and certified by Washington State as consistent with the State's Coastal Zone Management Program.

y. Historic Properties and Cultural Resources. No activity which may affect historic properties listed or eligible for listing in the National Register of Historic Places is authorized until the District Engineer has complied with provisions of 33 CFR 325, Appendix C.

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